

*Dental Training Series
1871-2*

Columbia University Bulletin

M-COLLECTION

COLUMBIA
UNIVERSITY

HEALTH SCIENCES
LIBRARY

School of Dental and Oral Surgery

1971-1972

Serial

^c
1971-1972

Spec Coll

Hf Coll

Columbia University in the City of New York

School of
Dental
and
Oral Surgery

1971-1972

The Faculty of Dental and Oral Surgery

- William J. McGill, Ph.D., LL.D., L.H.D. *President of the University*
Wm. Theodore de Bary, Ph.D., D.Litt. *Executive Vice President for Academic Affairs and Provost of the University*
Paul A. Marks, M.D. *Vice President in Charge of Medical Affairs*
Melvin L. Moss, D.D.S., Ph.D. *Dean*
Herbert J. Bartelstone, D.D.S., Ph.D. *Associate Dean*
George L. O'Grady, D.D.S. *Assistant Dean*
Stephen Wotman, D.D.S. *Special Assistant to the Dean*
- Harold L. Applewhite, D.D.S., M.P.H. *Associate Professor of Dentistry*
Howard A. Arden, D.D.S. *Associate Professor of Dentistry*
Herbert D. Ayers, D.D.S. *Associate Professor of Dentistry*
Sam M. Beiser, Ph.D. *Professor of Microbiology and Professor of Oral Biology*
Frank E. Beube, L.D.S., D.D.S. *Adjunct Professor of Dentistry*
Edward A. Cain, Jr., D.D.S. *Professor of Dentistry*
Victor S. Caronia, D.D.S. *Associate Professor of Dentistry*
Erwin Chargaff, Ph.D. *Professor of Biochemistry*
Joseph A. Cuttita, D.D.S. *Professor of Dentistry*
Edward W. Dempsey, Ph.D. *Professor of Anatomy*
Nicholas A. Di Salvo, D.D.S., Ph.D. *Professor of Dentistry*
Robert Gottsegen, D.D.S. *Professor of Dentistry*
Brian F. Hoffman, M.D. *David Hosack Professor of Pharmacology*
Sidney L. Horowitz, D.D.S. *Professor of Dentistry*
Donald W. King, M.D. *Francis Delafield Professor of Pathology*
Austin H. Kutscher, D.D.S. *Associate Professor of Dentistry*
Joseph M. Leavitt, D.D.S. *Clinical Professor of Dentistry*
John J. Lucca, D.D.S. *Professor of Dentistry*
Patricia A. McLean, M.A. *Associate Professor of Dental Hygiene*
Irwin D. Mandel, D.D.S. *Professor of Dentistry*
Henry I. Nahoum, D.D.S. *Associate Professor of Dentistry*
Thomas W. Portway, D.D.S. *Associate Professor of Dentistry*
Harry M. Rose, M.D. *John E. Borne Professor of Medical and Surgical Research*
Solomon N. Rosenstein, D.D.S. *Professor of Dentistry*
John V. Taggart, M.D. *Professor of Physiology*
Ennio L. Uccellani, D.D.S. *Associate Professor of Dentistry*
Edward V. Zegarelli, D.D.S., M.S. *Edwin S. Robinson Professor of Dentistry*

COMMITTEES

ADMISSIONS (UNDERGRADUATE)	Professors Cuttita (<i>chairman</i>); Anderson, Bartelstone, Dworkin, Miller, Nahoum, and Naidorf; Dean Moss (<i>ex officio</i>)
ADMISSIONS (DENTAL HYGIENE)	Professors McLean (<i>chairman</i>); Cuttita, and Wehrle; Dean Moss (<i>ex officio</i>)
ADMISSIONS (POSTGRADUATE)	Professors Gottsegen (<i>chairman</i>); Bartelstone, Cuttita, DiSalvo, Leavitt, Lucca, Rosenstein, and Zegarelli; Dean Moss (<i>ex officio</i>)
EXECUTIVE	Dean Moss (<i>chairman</i>); Professors Applewhite, Bartelstone, Beiser, Cain, DiSalvo, Gottsegen, Horowitz, Leavitt, Lucca, McLean, Mandel, Rosenstein, and Zegarelli; Assistant Dean O'Grady
INSTRUCTION	Professors Mandel (<i>chairman</i>); Applewhite, Bartelstone, Beiser, Cain, Dempsey, DiSalvo, Dworkin, Gottsegen, Horowitz, Kahn, Kaplan, King, Leavitt, Lucca, Noback, Nocenti, Rose, Rosenstein, Salentijn, and Zegarelli; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
FIRST-YEAR CLASS	Professors Beiser (<i>chairman</i>); Eisenberg, Jenkins, King, Mandel, Noback, and Nocenti; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
SECOND-YEAR CLASS	Professors Cain (<i>chairman</i>); Applewhite, Bartelstone, Beiser, Blake, Budowsky, Caronia, Gottsegen, Horowitz, Kahn, King, Mandel, and Salentijn; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
THIRD-YEAR CLASS	Professors Lucca (<i>chairman</i>); Bartelstone, Cain, Caronia, Horn, Nahoum, Schwartz, and Zegarelli; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
FOURTH-YEAR CLASS	Professors Zegarelli (<i>chairman</i>); Applewhite, Bartelstone, Cain, Caronia, DiSalvo, Johnson, Lucca, and Rosenstein; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
DENTAL HYGIENE	Professors McLean (<i>chairman</i>); Applewhite, Bartelstone, Cuttita, DiSalvo, Gottsegen, Kaplan, Uccellani, Wehrle, and Zegarelli; Dean Moss (<i>ex officio</i>)
POSTGRADUATE	Professors Gottsegen (<i>chairman</i>); Bartelstone, Cuttita, DiSalvo, Leavitt, Lucca, Person, Rosenstein, and Zegarelli; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
INSTRUMENT	Professors Uccellani (<i>chairman</i>); Lucca, Nahoum, Portway, and Rosenstein; Mr. McGrath; Assistant Dean O'Grady.
TEACHING	Professors Bartelstone (<i>chairman</i>); Cain, DiSalvo, Horowitz, and Lucca; Dean Moss (<i>ex officio</i>)

IN-SERVICE TRAINING	Professors Caronia (<i>chairman</i>); Bartelstone, Cain, Gottsegen, Horowitz, Lucca, Rosenstein, Uccellani, and Zegarelli
CONTINUING EDUCATION	Professors Gottsegen (<i>chairman</i>); DiSalvo, Horowitz, Leavitt, Lucca, I. D. Mandel, and Zegarelli; Dean Moss (<i>ex officio</i>)
SCHEDULING	Professors Cain (<i>chairman</i>); Horn and Koch

DELEGATES TO THE UNIVERSITY SENATE

Edward A. Cain, Jr.

Morton C. Rennert

ADMINISTRATIVE STAFF

Kathrine L. Brown. *Administrative Assistant*

Eileen H. Daly. *Assistant to the Registrar of the University*

Ann M. Emmerich. *Assistant to the Dean*

Thomas P. Fleming, M.S. *Head, Medical Sciences Division Libraries*

Gertrude Levin. *Executive Secretary*

Michael J. McGrath. *Manager of Dental Stores*

OFFICERS EMERITI

Houghton Holliday. *Professor Emeritus of Dentistry*

Carl R. Oman. *Professor Emeritus of Dentistry*

Gilbert P. Smith. *Professor Emeritus of Dentistry; Dean Emeritus*

Frances A. Stoll. *Professor Emeritus of Dental Hygiene*

Objectives of the School

The School of Dental and Oral Surgery of Columbia University can trace its origins to the year 1852, when the New York State Legislature chartered the New York College of Dental Surgery. The College became part of Columbia University in 1916 when it was recognized that dentistry is an integral part of the health sciences and that dental education is a true university discipline. The program of the School was established on this basis. Many departments of the University contribute to and collaborate on the education of the dental student, thereby assuring him a broad foundation for sound professional development. As the guiding educational policy of Columbia University is a constant pursuit of excellence, the primary goal of the School of Dental and Oral Surgery is the preparation of dentists who will fulfill their obligations to the individual, to society, and to the profession. The dental education policy at Columbia has in the past provided leadership in the maturation of dentistry in the United States. Two examples of such leadership are (1) the establishment at Columbia University in 1920 of the first organization devoted exclusively to research in dentistry, and (2) Professor William J. Geis' preparation of a major critique of dental education in the United States in 1926 which resulted in the acceptance by dental schools throughout the country of the basic policies and objectives developed at Columbia.

The University, realizing the need for even greater emphasis on the prevention of dental disease, is again revising the dental curriculum. The new curriculum is designed to increase the student's appreciation of the conceptual basis of dentistry. Adequate preparation for dentistry demands an understanding of broad biological principles integrated with the continually evolving body of scientific information in clinical dentistry and basic dental research. Building on this base, the student is exposed to the full spectrum of dental problems as a directed observer, and is then introduced to those surgical and manipulative procedures and methods of diagnosis and prevention which he must learn to perform with a high degree of competence. Emphasis is on the close relationship between systemic and oral health and disease, on systemic aberrations that affect the oral structures, on diseases of the mouth which may affect other organ systems, and on dental health as an essential to total health.

Clinical training is broad in scope. It is designed to produce competence in the recognition of oral disease and disorder, to stress the essential role of prevention in the control of oral disease, to establish the concept of maintaining the oral structures in optimal health, and to develop skill in planning and execution of treatment.

It is necessary that the dental curriculum be considered only the initial framework for the student's lifetime participation in dental science and art. To this end, the curriculum must cultivate in the student those habits of independent thought and scholarship that encourage the continual evaluation of new knowledge. Although learning plays a vital role in the student's life, his future development and attainment can be assured most effectively by fostering a spirit of

inquiry. Accordingly, there is constant application of the scientific method, and both undergraduate and postgraduate students are encouraged to participate in research.

Because the population is rapidly increasing, knowledge of the processes of human growth and development and of prevention of disease and abnormality must be amplified. In medicine, prevention of disease has resulted in extensive reduction in infant and child mortality and in a marked increase in the life span of the individual. In dentistry, prevention of dental and oral disease and disorder must be effected in childhood to enable our youth to reach adulthood with complete, healthy dentitions and socially acceptable speech and expression. The increased life span presents many new physiological, pathological, and psychological problems which are peculiar to the aged and are open to investigation. In addition to undergraduate education, programs in graduate education and research are essential if we are to meet these challenges to dentistry. The School of Dental and Oral Surgery regards high standards in both graduate education and research as prime objectives which follow directly from its objectives in undergraduate education.

Foresight on the part of the founders of the School of Dental and Oral Surgery has provided for the education of auxiliary personnel to augment dental health services. The program of Courses for Dental Hygienists was established in the same year that the School became part of the University. A formal dental auxiliary utilization program is functioning at the School. It is designed to train auxiliary personnel and dental students in the efficient use of auxiliaries. This program also explores new opportunities for the use of auxiliary personnel in an attempt to provide additional services to meet the expanding dental health needs of a growing population.

The University has realized that to accomplish these objectives requires the selection of students with superior abilities and academic qualifications, acquisition and maintenance of an excellent staff, and constant pursuit of knowledge through an active and diversified research program. Conscious of these needs, the School selects its students with care and maintains small classes, with a favorable ratio of staff to students. This permits individual instruction and a stimulating relationship between student and instructor. The School has, through the years, had a distinguished staff which has demonstrated accomplishment in education, research, and professional leadership. A number of significant additions to the staff were made during 1969 and 1970. The renovation of clinical facilities was completed in 1969. Over the next four years there is to be a further expansion in full-time staff and planning for an entirely new physical facility on the Medical Center campus. The new curriculum, the expanded staff, and the new building assure the continued leadership of the University in dental education and research and increase its ability to prepare students to meet the expanding professional responsibilities of dentistry.

► THE PROGRAM OF STUDY

September 1969 marked the inauguration of an exciting new curriculum at the School. All of the basic science courses are being offered to both dental and

medical students in the form of a "core" program. During the first year the dental student takes all the basic science subjects except pharmacology (second year, first trimester). Also in the first year the dental student is required to take three new courses (1) *Introduction to Dentistry, 100*, in which he is exposed to the nature of dentistry and its significance, the means of delivery of dental care, and the kinds of preventive and treatment services which modern dentistry provides; (2) an interdisciplinary course in human behavior which deals with the psychological aspects of patient care; and (3) a series of correlation clinics consisting of lectures and demonstrations designed to integrate medical and dental clinical subjects with the basic sciences.

Under the new curriculum, the second year is essentially a "core" dental-science year, providing the full range of courses in oral biology as well as the conceptual basis for the application of modern methods in the recognition, prevention, and treatment of dental disorders. Clinical observation, small group teaching, and frequent seminars provide the second-year student with a comprehensive view of dentistry. The new program also includes an integrated course in dentistry (recognition, prevention, concepts of therapy, instrumentation, and clinical observation) as well as a course in psychosocial aspects of dentistry.

In the new curriculum, the third year is to be primarily clinical, with training in all phases of dentistry. Emphasis is to be on correlation of the various dental disciplines with each other and with the basic sciences. Prevention and comprehensive treatment are to be stressed while technical laboratory procedures are to be limited. Third-year students are to function as student preceptors for second-year students and conduct or participate in seminars on clinical subjects with second- and fourth-year students and staff. In 1970-1971, as many aspects of this program as possible are to be introduced to the present third-year class.

During the fourth year under the new curriculum, the opportunity to choose electives in special areas of dentistry is to be made available, and over the next few years an increasing number of electives are to be designed and offered. In order to increase their ability to view clinical cases in a comprehensive manner, fourth-year students are to spend time as student preceptors in the clinic and in seminars held in conjunction with underclassmen and the staff.

Because of the constantly expanding body of knowledge in basic and dental sciences and the need for adequate clinic time, it is anticipated that two summer sessions are to be required: (1) between the second and third years (starting in 1971); (2) between the third and fourth years (now in effect). These sessions are to be held during June and July for approximately eight to nine weeks.

Throughout the entire course an effort is made to interrelate the different phases of dental learning by means of "correlative" and "combined" clinics in which the various departments and divisions cooperate in the discussion and demonstration of the same and related problems and thus treat the study of dentistry as a unit rather than a series of isolated branches of learning. At the same time an attempt is made to individualize instruction and to place responsibility as far as practicable upon the student for his own training. This is accomplished by the division of classes into small sections, by conferences, and by the comprehensive case method of instruction.

The student's voluntary participation in research projects of his own choosing and in programs under the guidance of the faculty is earnestly encouraged. Mem-

bers of the William Jarvie Society for Dental Research, the undergraduate research and honor society, undertake individual and team projects under the direction of members of the faculty. Lectures on the principles and practice of research are provided for the membership. In addition, students assist in the execution of studies being pursued by faculty members. A limited number of student research fellowships are available for summer work under the direction of the staff. The scope of student research includes critical reviews of the literature, clinical studies in the techniques of the various disciplines of dentistry, and the evaluation of newer therapeutic agents and dental materials. Work in the basic sciences is encouraged.

The administrative offices and the clinical and research facilities of the School of Dental and Oral Surgery occupy three floors of the Vanderbilt Clinic wing of the Columbia-Presbyterian Medical Center, one of the great institutions of its kind in the East. In addition to research facilities in basic science departments in the College of Physicians and Surgeons, the School has research laboratories in two nearby buildings.

THE DENTAL CLINIC

The School benefits in many ways by its association with the Medical Center. One of the functions of its clinic is the dental care of patients in the Center's hospitals. Dental students are given a unique opportunity to gain experience in the diagnosis and care of those cases where a relationship exists between oral and general systemic diseases. The student also learns at first hand the problems of providing dental care for the hospitalized patient. The wards and outpatient departments of the Center give close contact and association with all branches of the health services.

THE LIBRARY

The Medical Library occupies parts of the three lower floors in the College building. It provides current literature, both books and journals, for faculty and students, and it aids in research through its own collection of current and historical works and through its unique bibliographic service.

The library contains approximately 295,000 volumes of books and journals, some 5,000 pamphlets, and about 2,000 slides on the history of medicine. More than 4,500 periodicals are received regularly. A professional library staff is available to aid students, faculty, and research workers in medicine, dentistry, nursing, public health, and the hospitals of the Medical Center.

The libraries on the Morningside campus, which contain over 4,000,000 books, periodicals, and documents, are open to all students. The main collection is housed in Butler Library, while special departmental collections are located in various other buildings on the campus. They include collections on biology, chemistry, psychology, sociology, and other subjects related to dentistry and supplement the special collections available in the Medical Library. Books may be borrowed for home use.

The Medical Library is open Monday through Friday, 8:30 a.m. to 11 p.m.; Saturday, 9 a.m. to 5 p.m.; and Sunday, 12 noon to 10 p.m., during the academic year. All other libraries post their hours.

► POSTGRADUATE TRAINING

The School of Dental and Oral Surgery arranges courses in the various areas of dentistry to meet the needs of practitioners. In 1971 short refresher courses will be offered in various subjects. Admission requirements include graduation from an approved dental school and licensure to practice dentistry within the United States or a foreign country. There is no degree or certificate offered for these courses.

The School is also authorized to grant certificates of training in special branches of dentistry. Study for the certificate of training includes special work in the clinical and basic-science branches of dentistry approved by the Dean. At present, programs are offered to qualify graduates in dentistry who wish to prepare for specialization in endodontics, orthodontics, pedodontics, and periodontology.

For further information see the bulletin of Postgraduate Courses for Dentists, which may be obtained from the Admissions Office, School of Dental and Oral Surgery.

GRADUATE COURSES IN THE BASIC SCIENCES

A limited number of fellowships are available to graduates of accredited dental schools. These fellowships offer opportunity for study in the following basic-science departments of the University: anatomy, biochemistry, microbiology, pathology, pharmacology, and physiology. For further information, address the Dean, School of Dental and Oral Surgery.

COURSES LEADING TO THE DEGREE OF DOCTOR OF PHILOSOPHY

Graduation from accredited dental schools under the present curriculum of four academic years preceded by three acceptable predental college years is considered by the Graduate School of Arts and Sciences of Columbia University to meet the general requirement for admission. There are additional admission requirements in certain departments. A student who is accepted by the Graduate School as a candidate for the degree of Doctor of Philosophy and who holds the Doctor of Dental Surgery degree from Columbia University may, with the consent of the Dean, offer the work done for the professional degree in lieu of points toward the fulfillment of the residence requirement for the degree. For further information see the bulletin of the Graduate Faculties, which may be obtained by writing to the Graduate School of Arts and Sciences Office of Admissions and Financial Aid, 106 Low Memorial Library, Columbia University, New York, N.Y. 10027.

PUBLIC HEALTH FOR DENTISTS

A one-year course leading to a Master of Public Health degree is offered by the School of Public Health. The course is open to graduate dentists. For further information regarding course content, registration, and fees, apply to the Director, School of Public Health and Administrative Medicine, 600 West 168th Street, New York, N.Y. 10032.

► COURSES FOR DENTAL HYGIENISTS

Columbia offers a bachelor's and a master's degree in dental hygiene. Candidates for the Bachelor of Science degree are admitted only in September under one of two classifications: Program A, for the student with two years of liberal arts college credit; Program B, for the student with two years of dental hygiene college credit. Candidates for the Master of Science degree are admitted in February or September. The program for the M.S. degree provides advanced education in dental hygiene administration, research, and teaching.

For further information address inquiries to the Director, Courses for Dental Hygienists, 630 West 168th Street, New York, N.Y. 10032.

Courses of Instruction

The University reserves the right to withdraw or modify the courses of instruction or to change the instructors at any time. As indicated in the Objectives and Program of Study, the curriculum is undergoing extensive revision. Announcements concerning course titles, content, and staffing of a number of new courses will be made prior to the start of the 1971–1972 academic year.

ANATOMY

Anatomy 115. Oral microscopic anatomy and embryology

Professor Salentijn and the staff. Second year.

This course is the same as *Oral Biology 200*.

Lectures, conferences, and laboratory on the detailed microscopic anatomy and development of the dental and associated orofacial structures.

Anatomy 150. Microscopic anatomy

Professor Dempsey and the staff. First year.

Lectures, conferences, and laboratory.

This course is the same as *Anatomy 101F* in the College of Physicians and Surgeons.

Anatomy 151. Gross anatomy and embryology

The staff. First year.

Regional dissections of the complete body, augmented by lectures stressing *functional* interpretations. Lectures correlate developmental anatomy with gross anatomy.

Anatomy 153. Nervous system

Professors Carpenter and Noback and assistants. First year.

Lectures and demonstrations on the gross anatomy, structure, and functions of the central nervous system.

Anatomy 352. Functional anatomy of the head and neck

Professor Crikelair and the staff. Third year.

A concise review of the functional interrelationships in this region and their dynamic significance. Pertinent clinical topics are analyzed from this viewpoint.

BIOCHEMISTRY

Biochemistry 150. Principles of biochemistry

The staff. First year.

A survey of the chemical constituents of the mammalian cell and their metabolic activities; energy production in the cell, and its role in the synthesis of biological macromolecules; biosynthesis of nucleic acids and proteins; regulation of nucleic acid and protein synthesis.

INTERDISCIPLINARY CORRELATION COURSES

Correlation Clinics 100.

Professors Taggart and Herter. First year.

A series of clinics illustrating the application of basic science to the understanding of disease mechanisms.

Introduction to Dentistry 100.

Professor Bartelstone and the staff. First year.

Lectures, demonstrations, and periods of clinical observation designed to define the scope of dentistry early in the career of the dental student. Correlation between the preclinical and clinical disciplines is an integral part of the course content.

Introduction to Dentistry 200.

Professor Bartelstone and the staff. Second year.

Lectures, demonstrations, and clinical observation designed to permit the second-year student to experience the newly developing curriculum as early as possible. It begins to supply the background he needs to utilize fully the modifications in emphasis and course content in his ensuing clinical training.

Dental Materials 327. Physical properties of dental materials

Professor Ayers. Third year.

Lectures and demonstrations relating the properties and functions of the restorative and accessory dental materials with the oral tissues. This is supplemented by correlated instruction in the various clinical disciplines during the second, third, and fourth years.

Comprehensive Case 485. Comprehensive case

The staff. Fourth year.

Each student is assigned a case for which he performs all the dental services: taking of x-ray negatives, treatment planning, surgery, and reparative and restorative procedures. The services are carried out in the various clinical divisions. The oral examination accompanying the inspection of the completed case aims to correlate the teaching of the entire course.

Temporomandibular Joint Disorders 484.

The staff. Fourth year.

Lectures, clinical demonstrations, and conferences on the principles of the diagnosis and treatment of disorders of the temporomandibular joints.

ENDODONTICS**Endodontics 232. Endodontics theory and technique**

Professors Leavitt, Naidorf, Moreinis, and the staff. Second year.

Lectures and seminars on the fundamentals of endodontics. Demonstrations and exercises in endodontic technique on extracted teeth.

Endodontics 335. Basic clinical endodontics

Professor Goodman and the staff. Third year.

Demonstrations and clinical experience in the practice of endodontics on selected single-rooted teeth.

Endodontics 436. Advanced clinical endodontics

Professor Leavitt and the staff. Fourth year.

Lectures and clinical experience in more advanced problems in endodontics.

MEDICINE**Medicine 378. General survey of medicine**

Professor Cosgriff and the staff. Third year.

The important aspects of internal medicine, with reference to fundamentals as well as recent diagnostic and therapeutic advances. Particular emphasis on over-all medical problems and their implications for dentistry.

MICROBIOLOGY**Microbiology 151. General medical microbiology and immunology**

The staff. First year.

Laboratory and conferences.

Microbiology 152. Principles of microbiology, immunology, and epidemiology

The staff. First year.

This course is similar to *Microbiology 105F* in the College of Physicians and Surgeons. Lectures on oral microbiology are substituted for several of those of the medical series.

OPERATIVE DENTISTRY**Operative Dentistry 231. Elements of operative dentistry**

Professor Portway and the staff. Second year.

Lectures and laboratory exercises on the fundamentals of operative dentistry, including the etiology of dental caries and the biological approach to the technical procedures in the restoration of teeth. Periods of clinical observation are an integral part of the course.

Operative Dentistry 333. Operative clinical practice

Professor Cain and the staff. Third year

Introduction to the clinical practice of operative dentistry. Lectures, demonstrations, and clinical experience in the recognition of disease and related conditions. Prevention, treatment planning, and restoration to form and function.

Operative Dentistry 434. Advanced clinical practice

Professor Cain and the staff. Fourth year.

A continuation of *Operative Dentistry 333*, with the addition of seminars in the special problems of operative dentistry.

ORAL BIOLOGY**DEVELOPMENT AND FUNCTION**

A correlated, interdisciplinary series of courses.

Oral Biology 200. Oral microscopic anatomy and embryology

Professor Salentijn and the staff. Second year.

This course is the same as *Anatomy 115*.

Lectures, conferences, and laboratory.

Oral Biology 201. Oral anatomy and occlusion

Professors Arden, Horowitz, and the staff. Second year.

Lectures, seminars, and laboratory sessions in oral anatomy. Dental morphology and evolution and theories of occlusion. A joint course of the divisions of orofacial development and oral biology.

Oral Biology 202. Growth and development

Professor Horowitz and the staff.

Lectures in the development of the dentition including embryo-genesis, timing and sequence of calcification and eruption, development of occlusion, and changes in the dentition with age. A joint course of the divisions of orofacial development and oral biology.

BIOLOGY OF THE ORAL TISSUES**Oral Biology 210. Oral biochemistry**

Professors Smith and Persons. Second year.

Lectures and seminars on the biochemical nature of the oral tissues and their metabolic activities.

Oral Biology 211. Oral physiology

Professors Di Salvo, Mandel, and the staff. Second year.

Lectures and seminars on the physiology of the masticatory system, special sensation, oral secretory system, oral circulation, and their relation to dental practice.

Oral Biology 212. Oral pharmacology

Professor Bartelstone and the staff. Second year.

Lectures and seminars designed to provide a comprehensive pharmacologic base for dental practice.

Oral Biology 213. Oral microbiology

Professor Beiser and the staff. Second year.

Lectures and seminars on the microbiologic, viral, and immunologic aspects of the oral diseases.

OROFACIAL GROWTH AND DEVELOPMENT

Statistics and Epidemiology 200.

Professors Chabora, Applewhite, and the staff. Second year.

Lectures, seminars, fieldwork, and laboratory sessions in basic biostatistics and dental epidemiologic methods and techniques. A joint course of the divisions of orofacial growth and development and preventive dentistry and community health.

ORTHODONTICS

Orthodontics 341. Principles of orthodontics

Professor Di Salvo and the staff. Third year.

Lectures, seminars, and laboratory. Orthodontic fundamentals, with special emphasis on prevention of malocclusion by the early recognition and correction of the predisposing factors. Laboratory time is devoted to the designing and construction of fixed and removable appliances used as space maintainers. In addition, simple appliances used in tooth guidance procedures, which are considered to be within the province of the general practitioners of dentistry, are constructed.

Orthodontics 342. Orthodontic clinic

Professors Di Salvo, M. Gliedman, and R. Gliedman. Third year.

Students obtain clinical experience in the use of appliances constructed in the laboratory. They treat patients with orthodontic problems which require either preventive measures or minor tooth movement.

Orthodontics 441. Elective in orthodontics

Professor Di Salvo and the staff. Fourth year.

Lectures, seminars, laboratory and clinic participation. An intensive, in-depth exposure to etiology, diagnosis, case analysis, treatment planning, and clinical management of malocclusion.

PATHOLOGY

Pathology 150. General and special pathology

Professors Blanc, Cowen, Duffy, Gambino, Godman, King, Lane, Lattes, Osserman, Richart, Stoerk, Vogel, Wagner, and Wilens. First year.

Same course as that given to medical students, including lectures, seminars, and laboratories, with emphasis on gross and microscopic examination of tissues, correlated with clinical findings.

Pathology 246. Oral pathology

Professor Blake and the staff. Second year.

Lectures, demonstrations, conferences, and laboratory work on diseases of the jaws, teeth, and soft tissues about the oral cavity. Emphasis on clinical manifestations of the various diseases.

PEDODONTICS

Pedodontics 301. Fundamentals of pedodontics and preventive dentistry

Professor Rosenstein. Summer II.

Lectures on basic aspects of pedodontics and the role of pedodontics in preventive dentistry. The several phases of dental service for children, mean ages for various stages of normal dental growth

and development, the significance of dental service, and areas of dental service involving preventive measures. Also included is preparation for the technique course: anatomical details of primary teeth and principles of operative procedures for the primary teeth.

Pedodontics 302. Technique course

Professors Nathanson and Berg and Dr. Bassett. Summer II.

Demonstration and technique exercises in special operative procedures for compound-cavity preparation and filling, and full-crown coverage for primary teeth on technique models using newer types of cutting instruments.

Pedodontics 403. Preventive dentistry

Professor Rosenstein. Fourth year.

Lectures on the principles of prevention of dental and oral disease and disorders in children: dental caries, the common oral soft-tissue lesions, disorders of occlusion in the developing dentitions, and elimination of unfavorable habits involving the mouth. Constitutional and systemic factors (including nutrition) are included, as well as local oral factors. In each of these areas specific recommendations are made for elimination of unfavorable factors and clinical application of positive preventive measures. Pertinent literature is assigned and reviewed.

Pedodontics 404. Theory and practice of pedodontics

Professor Rosenstein. Fourth year.

Lectures and conferences on the factors involved in basic treatment planning for children and requisite background knowledge: clinical aspects of the various stages of dental development, child evaluation and management, purposes and essentials of pedodontic history-taking, home care, special operative procedures involving pulp therapy for conservation of children's teeth, management of traumatized teeth, and special considerations in dental care for children with handicapping conditions.

Pedodontics 405. Pedodontics clinic

Professor Rosenstein and the staff. Fourth year.

Clinical practice in total management of the child patient and application of the principles and procedures presented in the lecture courses: history-taking, prophylaxis, special operative procedures for prevention of premature loss of children's teeth, and appliance therapy for space management in developing dentitions. Application of knowledge of dental development, child development, and preventive dentistry is emphasized in evaluation of the child dental patient and in treatment planning. Assignments to the clinic for handicapped children are included.

PERIODONTICS

Periodontics 201. Periodontics lectures, seminars, and clinic

Professor Gottsegen and the staff. Second year.

Lectures and seminars in the diagnosis, etiology, and treatment of periodontal diseases. Clinical practice in examination and documentation of clinical findings in the periodontal patient, prophylaxis, subgingival scaling and root planing, teaching and motivating patients to perform personal oral hygiene. The fundamentals of preventive periodontics are covered.

Periodontics 301. Periodontics lectures, seminars, and clinic

Professor Gottsegen and the staff. Third year.

Lectures and seminars on periodontal surgery, occlusal traumatism, selective tooth grinding, specific periodontal diseases and infections, systemic background factors and interrelationships, methods of temporary stabilization of teeth, introduction to treatment planning, and case presentation both in seminar and clinic. Clinical practice in subgingival curettage, simple surgical techniques, occlusal adjustment by selective grinding, and temporary stabilization.

Periodontics 401. Periodontics lectures and seminars

Professor Gottsegen and the staff. Fourth year.

Lectures and seminars tracing the historical development of treatment methods, advanced surgical techniques, special therapeutic problems, fixed and permanent splinting and restorative dentistry for the periodontally involved dentition. A review of periodontal histopathology related to the clinical experience, treatment planning, case management, and case presentation.

Periodontics 402. Periodontics clinic

Professor Gottsegen and the staff. Fourth year.

A continuation of *Periodontics 301*. Advanced periodontal surgical techniques and the clinical management of more complex cases.

Periodontics 403. Seminars and clinic

Professor Gottsegen and the staff. Fourth year elective-honors program

Limited to 6 students.

Seminar subject material researched by literature review and independent critical analysis. Clinic experience in the diagnosis, treatment planning, and therapeutic management of complex and difficult cases. The objective of this honors program is to have the student achieve the didactic knowledge and clinical competence of the first-year postgraduate student.

PHARMACOLOGY

Pharmacology 250. Introduction to pharmacology

The staff. Second year.

Lectures on a wide variety of drugs. The effects of many of these drugs on man and lower animals are demonstrated in the laboratory. Emphasis on general pharmacological principles to assist the student in the rational use of drugs and in the evaluation of new remedies as they may be introduced.

PHYSIOLOGY

Physiology 150. Mammalian physiology

Professor Nocenti and the staff. First year.

Lectures, conferences, demonstrations, and laboratory. The function of the various organ systems of the mammalian body and their interrelations.

PREVENTIVE DENTISTRY AND COMMUNITY HEALTH

Preventive Dentistry 200. Principles of preventive dentistry

Professor Mandel and the staff. Second year.

Lectures and seminars on the etiology, histopathology, and prevention of the plaque diseases—caries and periodontal diseases; preventive aspects of malocclusion and oral lesions; nutrition, patient education, and motivation for prevention.

Preventive Dentistry 201. Laboratory and clinical exercises

Professors Mandel, Weinstein, Wotman, and Zengo. Second year.

The techniques for studying plaque, calculus, saliva, and gingival fluid. Clinical training in fluoride procedures and dietary analysis.

Preventive Dentistry and Community Health 202.

Professors Applewhite, Dworkin, and the staff. Second year.

Lectures, demonstrations, and field exercises in education for prevention.

Community Health 300. Social dynamics

Professor Applewhite. Third year.

Lectures and seminars on utilization of health facilities by groups, response of society and the individual to health problems, social and cultural conditions that influence disease, environment and ecology; the dynamics of community action and sociocultural barriers and motivating factors.

Community Health 301. Principles of community health

Professor Applewhite. Third year.

Survey course in theory and practice of public health with more detailed discussion of dental public health, group practice, community involvement, and dental health education resources. Opportunities are provided for field trips and observation of dental problems and dental care in community and institutional settings.

Dental Auxiliary Utilization 300 and 400.

Professor Kaplan. Third and fourth years.

Lectures, demonstrations, and clinical practice in the efficient utilization of chairside dental auxiliaries under conditions simulating private practice. Operative positions for the dental team and patient, preplanned sequential instrumentation and treatment within the concepts of "four-handed" dental team operation. Equipment and operating area principles and evaluation, communication, and training auxiliary personnel.

Systems of Dental Practice 400. Ethics, jurisprudence, and history of dentistry

Professor Applewhite and the staff. Fourth year.

Lectures as prerequisite to the proper appreciation of community dentistry. They include the broad obligations posed by socioeconomics, humanities, ethics, and jurisprudence, and consider the evolution of preventive dentistry and community health as part of the advances made in dentistry.

Systems of Dental Practice 401. Health economics

Professor Applewhite and the staff. Fourth year.

The present and projected means of government, insurance, industrial, labor, and private financing of oral health care. The advantages and disadvantages of each method of financing oral care.

PROSTHODONTICS**Prosthodontics 200. Preclinical prosthodontics**

Professors Uccellani, Caronia, and the staff. Second year.

Lectures and demonstrations on theory and procedures in the fabrication of fixed, removable, and complete prostheses. Wherever necessary for the learning of manipulative skills in preparation for clinical objectives, procedures are carried out on models in the laboratory by the student. Periods of clinical observation are an integral part of the course.

Prosthodontics 300. Core clinical prosthodontics

Professors Lucca, Uccellani, Caronia, and the staff. Third year.

Lectures, demonstrations, and clinical experience in the biological principles and practice of the more simple cases in all phases of prosthodontics—fixed and removable partial dentures and complete dentures.

Prosthodontics 400. Advanced prosthodontics

Professors Lucca, Caronia, and the staff. Fourth year.

Lectures, demonstrations, seminars, and advanced clinical experience in the biologic principles and practice of fixed and removable dentures. Lectures on different concepts of occlusion and other schools of thought on various aspects of prosthodontics are given by the staff and guest lecturers.

Prosthodontics 401. Surgical prosthesis

Professor Bruno. Fourth year.

Lectures and technical procedures in maxillofacial and surgical prosthesis.

PSYCHIATRY**Psychiatry 100, 200, and 300. Human behavior**

Professor Schoenberg and the staff. First, second, and third years.

Psychosocial aspects of patient care. Lectures, demonstrations, and seminars.

STOMATOLOGY**Diagnosis and Radiology 200. Diagnosis and radiology lectures**

Professor Budowsky, Dr. Donovan, and the staff. Second year.

Lectures and discussions on history, physics, and electronics of radiology; studies on radiobiology, radiotherapy, radiation hazards, and protections; radiographic techniques and processing. Fundamentals of radiographic interpretation; diagnosis of pulpal diseases and associated abnormalities.

Diagnosis 201. Clinical stomatology conferences

Professors Zegarelli, Marder, Kutscher, and the staff. Second, third, and fourth years.

Required for third- and fourth-year and postdoctoral students, but second-year students and members of the staff are urged to attend.

Presentation by students of case histories of patients with diseases of the mouth and jaws which are of diagnostic interest and importance. General discussion of each case by and with the audience is encouraged.

Diagnosis 310. Clinical cancer training

Professors Zegarelli, Kutscher, and the staff. Third year.

Lectures and clinical experience in the diagnosis and treatment of tumors of the head, face, and neck. The student is rotated for one week through the otolaryngology, radiotherapy, dermatology, and maxillofacial prosthesis clinics. Operating room experience in the surgical management of tumors is included.

Diagnosis 312. Diagnosis lectures and clinic

Professors Zegarelli, Marder, Levine, and the staff. Third year.

Lectures and discussions on diagnostic methods and techniques, diseases of the maxilla and mandible, tumors of the mouth, and diseases of the soft tissue. Clinical practice in mouth examination, history-taking, diagnosis of mouth and jaw diseases, and treatment-planning

Diagnosis 413. Diagnosis clinic

Diagnosis staff. Fourth year.

Clinical practice in diagnostic procedures and techniques, comprehensive diagnosis including treatment-planning, and clinical and laboratory diagnosis of diseases of the mouth and jaws.

Diagnosis 415. Diagnosis lectures

Professor Zegarelli and the staff and guest lecturers. Fourth year.

Lectures on focal infection; psychogenic disturbances, neurological diseases, radiation therapy, and diseases of the maxillary sinus.

Radiology 367. Radiology clinic

Professor Budowsky, Dr. Donovan, and the staff. Third year.

Clinical practice in intraoral and extraoral radiography; demonstrations of temporomandibular joint panoramic and laminographic techniques.

Oral Medicine 386.

Professors Zegarelli, Kutscher and Marder. Third year.

Lectures on the management and treatment of selected diseases of the mouth and jaws including choice of drugs, modes of administration, contraindications, and side reactions. The systemic implications of oro-dental therapy, the dental management of systemically ill patients, and other medicodental relationships is emphasized.

SURGERY**Surgery 200. Anesthesiology**

Professors Bartelstone, Baumstark, Katz and Schube. Second year.

Lectures and demonstrations in local and general anesthesia and principles of sedation.

Surgery 201. Introduction to oral surgery

Professors Baurmash, Loscalzo, L. Mandel and Minervini. Second year.

Lectures and demonstrations to prepare students for clinical oral surgery.

Surgery 301. Basic oral surgery

Professors Loscalzo, L. Mandel, Minervini, Baumstark, Baurmash, Linz and Terenzio. Third year.

Lectures and demonstrations in minor oral surgery. The principles of oral surgery are considered as applied to the total oral surgical environment.

Surgery 302. Clinical practice of basic oral surgery

Professors Loscalzo, L. Mandel, Minervini, and staff. Third year.

Clinical application of the principles of basic oral surgery.

Surgery 403. Clinical clerkship at The Roosevelt Hospital

Professor Linz and staff. Fourth year.

Assignment of students to The Roosevelt Hospital supervised by the hospital dental service.

Summary of the Program

Because of major revisions in curriculum, the following summary reflects the program for the year 1971–1972. Consequently, certain course offerings may appear to be duplicated and others may appear to be omitted.

FIRST YEAR (CLASS OF 1975)

Anatomy 150
Anatomy 151
Anatomy 153
Biochemistry 150
Correlation Clinics 100

Introduction to Dentistry 100
Microbiology 151 and 152
Pathology 150
Physiology 150
Psychiatry 100

SECOND YEAR (CLASS OF 1974)

Anatomy 115
Diagnosis 201
Diagnosis and Radiology 200
Endodontics 232
Introduction to Dentistry 200
Operative Dentistry 231
Oral Biology 200*, 201, 202, 210,
211, 212, and 213
Pathology 246

Periodontics 201
Pharmacology 250
Preventive Dentistry and Community
Health 200, 201, and 202
Prosthodontics 200
Psychiatry 200
Statistics and Epidemiology 200
Surgery 200 and 201

*Identical to *Anatomy 115*.

THIRD YEAR (CLASS OF 1973)

Anatomy 352
Community Health 300 and 301
Dental Auxiliary Utilization 300
Dental Materials 327
Diagnosis 201
Diagnosis 310
Diagnosis 312
Endodontics 335
Medicine 378
Operative Dentistry 333
Oral Medicine 386

Orthodontics 341
Orthodontics 342
Pedodontics 301 and 302
Periodontics 301
Prosthodontics 300
Psychiatry 300
Radiology 367
Surgery 301 and 302
Systems of Dental Practice 300
Therapeutics 386

FOURTH YEAR (CLASS OF 1972)

Comprehensive Case 485	Periodontics 401 and 402
Dental Auxiliary Utilization 400	Prosthodontics 400
Diagnosis 201	Prosthodontics 401
Diagnosis 413	Surgery 403
Diagnosis 415	Systems of Dental Practice 400 and 401
Endodontics 436	Temporomandibular Joint
Operative Dentistry 434	Disorders 484
Pedodontics 403, 404, and 405	

Elective courses are offered in most divisions.

REQUIRED SUMMER SESSION CLINICS

These sessions are held during June and July for approximately eight to nine weeks (see page 7).

Admission, Registration and Expenses

All qualified men and women receive consideration for admission without regard to race, creed, color, or national origin. Candidates should apply after July 1 during the academic year preceding that for which they seek admission, on application forms obtained from the Committee on Admissions, School of Dental and Oral Surgery, 630 West 168th Street, New York, N.Y. 10032. Each application must be accompanied by a check or money order for \$20, made payable to Columbia University, to cover the cost of processing the application. This fee is not returnable and is not credited toward tuition.

Required preparation: three full years at an acceptable college of arts and sciences, including the following courses (8 points of each): English composition and literature, physics, biology, inorganic chemistry, and organic chemistry.

Recommended preparation: additional courses in chemistry, advanced courses in biology, courses in mathematics, foreign languages, sociology, history, and the fine and industrial arts.

It is not necessary to complete the academic requirements before applying, but all requirements must be completed before registration. The admission of a student depends primarily on his preparation and intellectual capacity, but it also depends upon judgments of his character and health. Preference is given to applicants with bachelor's degrees from accredited colleges of arts and sciences.

DENTAL APTITUDE TESTS

All applicants must take the Dental Aptitude Tests, which are conducted by the Council on Dental Education at various testing centers throughout the United States and Canada. For further information apply directly to the Division of Educational Measurements, Council on Dental Education of the American Dental Association, 211 East Chicago Avenue, Chicago, Ill. 60611.

ACCEPTANCE FEE

Within one month after he receives notice of his acceptance, an applicant must notify the Committee on Admissions that he intends to enroll and must send a check or money order for \$200 made payable to Columbia University. If he registers for the term to which he has been admitted, the fee will be credited toward his tuition; if he does not register, the fee will not be refunded.

COMBINED COURSES

With Barnard College. Under the “professional option” plan, students from Barnard College may receive the Bachelor of Arts degree from Barnard after the completion of three years of undergraduate work and the first year in the School of Dental and Oral Surgery. To be eligible for this privilege, before entering the School the student must have completed at Barnard 90 points of academic work (including all specific requirements), a major of 28 points, and the major examination or thesis.

With the School of General Studies. Students from the School of General Studies may exercise the professional option after the completion of 94 points (including all courses prescribed for the Bachelor of Science degree), not less than 64 of which must have been taken at Columbia University.

► REGISTRATION

Before attending classes, students must register in person at the Office of the Registrar on September 7–8, 1971. Registration consists of filling out forms required for University records and paying the fees. Late registration requires the approval of the Dean of the School and the payment of a late fee (see below).

All students will be asked to give social security numbers when registering in the University. Those who do not now have a number should obtain one from their local social security office well in advance of registration.

► AUDITING COURSES

Degree candidates in good standing who are enrolled for 15 or more points in the current term may audit one or two courses in any division of the University without charge by filing a formal application in the Registrar’s Office (P&S, Room 3–412) during the change-of-program period. Applications require (a) the certification of the Registrar that the student is eligible to audit and (b) the approval of the dean of the school in which the courses are offered.

Elementary language courses, laboratory courses, and seminars are not open to auditors; other courses may be closed because of space limitations. In no case will an audited course appear on a student’s record, nor is it possible to turn an audited course into a credit course by paying the fee after the fact.

► REGULATIONS

Each person whose registration has been completed will be considered a student of the University during the term for which he is registered unless his connection with the University is officially severed by withdrawal or otherwise. No student registered in any school or college of the University shall at the same time be regis-

tered in any other school or college, either of Columbia University or of any other institution, without the specific authorization of the dean or director of the school or college of the University in which he is first registered.

The privileges of the University are not available to any student until he has completed his registration. Since, under the University statutes, payment of fees is part of registration, no student's registration is complete until his fees have been paid. No student is permitted to attend any University course for which he is not officially registered unless he has been granted auditing privileges. No student may register after the stated period unless he obtains the written consent of the proper dean or director.

ATTENDANCE AND LENGTH OF RESIDENCE

No degree will be granted to a student who has not registered for and attended at the School courses of instruction equivalent to at least four academic years of full-time work. No advanced standing is granted.

Students are held accountable for absences incurred owing to late enrollment. Any student whose religious duties conflict at any time with academic requirements should apply to his dean or director for an equitable solution.

A student in good standing may, for a valid reason, be granted a leave of absence by the dean or director of the division of the University in which he is registered.

ACADEMIC DISCIPLINE

The continuance of each student upon the rolls of the University, the receipt by him of academic credits, his graduation, and the conferring of any degree or the granting of any certificate are strictly subject to the disciplinary powers of the University.

HONOR CODE

Academic and intellectual integrity are accepted principles in the dental profession. An Honor Code, created and administered by the student body, is the formal acknowledgment of this understanding at the School of Dental and Oral Surgery. Each student is expected to abide by it.

► FEES

The following fees are prescribed by statute for the full program for one year for a candidate for the D.D.S. degree and are subject to change at any time at the discretion of the Trustees. Fees for a partial program are assessed by the Registrar as provided by the University statutes.

Tuition	\$2,800.00
Student health service fee for all full-time students, per academic year—(see page 26)	98.08

APPLICATION FEES AND LATE FEES

Application for admission	\$20.00
Application for each special examination	10.00
For renewal of application for a degree	1.00
For late registration	10.00
For late application, or late renewal of application, for a degree	10.00

FEES FOR REPEATED COURSES

A student who is required to repeat the work for any one year must pay the full tuition and fees.

WITHDRAWAL AND ADJUSTMENT OF FEES

A student who decides to withdraw from the University must notify the Registrar in writing at once. If he is under twenty-one years of age, his parent or guardian must first give consent in writing to the Registrar. He will be given an honorable discharge provided he is in good academic standing and not subject to discipline.

Any adjustment of the tuition that the student has paid is reckoned from the date on which the Registrar receives the student's written notification. The student health and hospital fee, application fees, late fees, and special fees are not subject to rebate. Up to and including the second Saturday after the first day of classes, tuition will be retained in the following amount:

Full-time study	\$50.00
Part-time study	25.00

After the second Saturday after the first day of classes in the term, the above amount is retained, plus an additional percentage of the remaining tuition (as indicated in the schedule below), for each week, or part of a week, of the term up to the date on which the student's written notice of withdrawal is received by the Registrar.

ADJUSTMENT SCHEDULE

	<i>Minimum Fees Retained</i>	<i>Percentage of Remaining Tuition Retained</i>
Second Saturday after first day of classes	\$25 or \$50	0
Week following second Saturday after first day of classes	25 or 50	10
Second following week	25 or 50	20
Third following week	25 or 50	30
Fourth following week	25 or 50	45
Fifth following week	25 or 50	60
Sixth following week	25 or 50	75
Seventh following week	25 or 50	90
Eighth following week	25 or 50	100 (no adjustment)

STUDENT HEALTH SERVICE FEE

The student health service fee is used to pay the annual premium of the Associated Hospital Service of New York for hospital insurance and to pay part of the cost of the Student Health Service. Students who already have hospital insurance are not charged the cost of the premium.

Daily office hours are held by the Student Health Service, 238 Fort Washington Avenue. Members of the health service are available to attend ill students if they live near the Medical Center. Students who require hospitalization are cared for either in the wards of the Medical Center or elsewhere under the terms of an insurance policy of the Associated Hospital Service of New York.

RENEWAL OF APPLICATION FOR THE D.D.S. DEGREE

An application for the D.D.S. degree terminates at the next regular time for the issuance of diplomas subsequent to the date of filing, but it may be renewed for a fee of \$1 each time that the candidate chooses to come up for consideration.

► ESTIMATED EXPENSES

The approximate cost of attending the School for an academic year of nine months is as follows:

	<i>Average</i>	<i>Minimum</i>
Tuition and fees for a full program	\$2,898.08	\$2,898.08
Room in one of the residence halls	625.00	460.00
Board in a University dining room	784.00	750.00

The average and minimum figures for board include the approximate cost of meals not provided under the weekly board plans; holiday periods are not included (see "Housing," pages 29–30).

In addition, each student should budget for such items as clothing, laundry and dry cleaning, travel, dues to organizations, amusements, and sundries. Those who live at home will probably spend about \$200 for lunches during the year.

BOOKS AND EQUIPMENT

Books. The approximate cost of books will be: in the first year, \$190; in the second year, \$300; in the third year, \$265; in the fourth year, \$120. Book lists are posted for each class during registration week. Books may be purchased from the Medical Center Bookstore on the first floor of the College of Physicians and Surgeons. The store is maintained expressly for the convenience of the students and staff of the Medical Center schools and hospitals.

Instruments and Supplies. Each student must buy, from the University, the original package outfit of instruments specified in the official instrument list. Un-

authorized or incomplete equipment will not be accepted by the instructors. The estimated cost of instruments for students entering in September 1971, will be approximately \$3,000 over the four-year period. Arrangements have been made with the Bursar to spread payments evenly over the four-year period. For the 1971-1972 academic year, the following schedule of payments will apply: Entering students will pay \$750 for each of the first three years and the balance in the fourth year. Second-year students will pay \$750 for each of the second and third years and the balance in the fourth year. Third-year students will pay \$1,000 for the third year and the balance in the fourth year. The only expense anticipated for fourth-year students will be for replacement of lost or broken instruments. Variations in these figures may be necessary because of price fluctuations or new developments. Instruments must be paid for at the beginning of the academic year, but students who can demonstrate their need may borrow from the University or from the Health Professions Loan Program to defray the cost. These are *estimates* and are subject to change. Students are asked *not* to present checks made out in advance and based upon these figures.

Microscopes. During the first and second years microscopes are provided by the School for an annual rental of \$15. If a student prefers to provide his own microscope, he must have it approved by the Department of Anatomy. It is recommended that the microscope be of standard make equipped with: (a) quadruple nose piece; (b) Abbe or variable focus condenser; (c) 4x, 10x, 43x objectives; (d) 96x oil immersion lens; (e) 10x wide field eye piece; (f) mechanical stage; (g) attached lamp; (h) carrying case. The cost of a new microscope ranges from \$460 to \$700, and of a reconditioned microscope from \$150 to \$450. Arrangements for approval and for purchase or rental should be made before registration for the opening term.

Lockers. Each entering student is assigned a locker; he must use a combination lock as prescribed by the School.

► FINANCIAL AID

Students may apply for loans and grants through the Dean's Office. Grants are awarded only in combination with loans; any student who can demonstrate his need is eligible to apply. Application forms are issued by the Dean's Office. Financial aid programs are administered without regard to race, creed, color, national origin, or sex.

Student loans are available on the basis of financial need to full-time Columbia degree candidates to partially cover normal educational and living expenses for the year in which the loan is granted. The maximum amount that a student who is a citizen or a permanent resident may borrow in any one year from all sources, including non-University programs, is \$3,000. The University reserves the right to assign the funds from which loans are granted. Students who are United States citizens and residents of states having loan plans are urged to apply to these sources. Federal Health Professions loan funds are also available. To insure an early decision,

applications for all loans should be filed for the autumn term by June 1; for the spring term by December 1.

The heavy schedule of the School makes it difficult for students to undertake outside part-time work during the academic year. If at all possible, other financial arrangements should be made.

NEW YORK STATE SCHOLAR INCENTIVE AWARDS

Any student who has been a legal resident of New York State for the preceding year is entitled to a Scholar Incentive Award for each term in which he is registered as a full-time degree candidate. The amount of this award is based upon the net taxable balance of his income and the income of those responsible for his support, as reported on the New York State income tax return for the previous calendar year. Further information and application forms may be obtained from the Department of Education, Regents Examination and Scholarship Center, Albany, N.Y. 12201. Application for awards should be filed three months in advance of the beginning of the term for which the grant is to apply.

AWARDS AND PRIZES

Alpha Omega Fraternity, Newark Alumni Chapter. An award of \$25 with a certificate, presented to the most deserving student in the first-year class.

Alpha Omega Scholarship Award. A plaque presented to the graduating student (not necessarily an Alpha Omegan) with the highest scholastic average for his four years of dental studies. First awarded in 1949.

American Academy of Oral Medicine. A certificate and a subscription to the *Journal of Oral Medicine*, awarded to a fourth-year student for excellence in this field.

American Academy of Gold Foil Operators. Certificate awarded to a fourth-year student for excellence in gold foil technique.

American Academy of Dental Radiology. A certificate awarded to a fourth-year student for excellence in this field.

American Academy of Periodontology. A student award certificate and a one-year subscription to the journals published by The American Academy of Periodontology, awarded to an outstanding student in periodontics.

American Association of Orthodontists. A certificate awarded to a student showing exceptional interest and special aptitude in orthodontics.

American College of Dentists, New York Section. An award of \$100 and a plaque or scroll. Presented to a third-year student who is a good all-around student, a member of the student section of the American Dental Association, and who exhibits leadership.

American Dental Society of Anesthesiology, Inc. An award certificate and a one-

year subscription to *Anesthesia Progress*, awarded to a fourth-year student who has shown outstanding ability or interest in the field of pain control.

American Society of Dentistry for Children. A certificate, one year of membership in the Society, and a one-year subscription to *The Journal of Dentistry for Children*, awarded to a fourth-year student.

William Bailey Dunning Award for Excellence in Periodontology. A medal awarded to the graduating student who is the most proficient in periodontology. First awarded in 1957.

Ella Marie Ewell. A medal awarded to the graduating student who is the most proficient in some subject of dentistry.

International College of Dentists, U.S.A., Section. A plaque presented to the graduating student who has shown the most professional growth and development during his years of dental study.

Italian Dental Society Award. An award of \$100 to a second-year student who has demonstrated outstanding scholarship in his first year of study.

Vincent Petrullo Scholarship Award—Sponsored by the Italian Dental Society of New York. An award of \$100 to a third-year student who has demonstrated outstanding scholarship in his second year of study.

Prize for Excellence in Operative Dentistry. A plaque awarded by the staff of the Section of Operative Dentistry to the graduating student who has shown the greatest proficiency in operative dentistry.

Certificate for Excellence in Pedodontics. A plaque awarded to a graduating student for excellence in pedodontics. Established by the Class of 1929.

Psi Omega Fraternity Award. A plaque presented by the Gamma Lambda Chapter to the graduating student who has displayed exemplary professional conduct.

Rowe-Wiberg Medal. An award made by the Association of Dental Alumni to the graduating student who has shown the greatest proficiency in prosthetic dentistry.

Women's Auxiliary to the 11th District Dental Society. An award of \$150 to a deserving fourth-year student who is a resident of the Borough of Queens.

► HOUSING

The University provides limited housing for undergraduate and graduate men and women, both single and married. Inquiries about men's housing and the accommodations for married students should be directed to the Residence Halls Office, 125 Livingston Hall, Columbia University, New York, N.Y. 10027. Women students should write to the women's residence hall, Johnson Hall, 411 West 116th

Street, New York, N. Y. 10027. All rates below are approximate and may be subject to change.

Rates in the graduate men's residence halls range from \$600 to \$750 for the academic year. Meals are available in the University dining halls on a cash basis.

In Johnson Hall, room rates for the academic year range from \$570 to \$815, with \$700 the median rate. All residents are required to take breakfast and dinner at Johnson Hall five days a week, at a cost of \$500 for the academic year, exclusive of weekends and the Christmas holidays.

Burgess, at 542 West 112th Street, is a newly renovated, air-conditioned building for married graduate students. Accommodations range from efficiency apartments (one room plus kitchenette and bath) to two-bedroom apartments; basic furniture is provided. Rates range from \$150 to \$240 a month, including utilities. Requests for further information and for application forms should be directed to the Office of University Housing, 400 West 119th Street, New York, N.Y. 10027.

Students who wish to live in furnished rooms or apartments off campus should consult the Registry of Off-Campus Accommodations, 401 West 117th Street, Columbia University, New York, N.Y. 10027, for information. Single rooms in private apartments range from \$15 to \$25 a week; double rooms, from \$20 to \$25. Most apartments, when available, are in the price range of \$160 to \$300 a month.

International House, a privately owned student residence near the campus, has accommodations for about five hundred graduate students, both foreign and American. Rates are \$84 to \$105 a month, including continental breakfast. To be eligible for admission a student must be at least twenty-one years old and must be registered for a minimum of 12 points or for a program of full-time research. Inquiries should be addressed to the Committee on Admissions, International House, 500 Riverside Drive, New York, N.Y. 10027.

► STUDENT ORGANIZATIONS

OMICRON KAPPA UPSILON

Epsilon Epsilon chapter of Omicron Kappa Upsilon, national honorary fraternity, was chartered in the School of Dental and Oral Surgery in 1934. The purpose of the fraternity is to recognize and honor a maximum of 12 percent of the members of the graduating class on the basis of scholarship, character, and potential for future professional growth and attainments.

THE WILLIAM JARVIE SOCIETY

The William Jarvie Society for Dental Research is a nonsecret, dental honor society, membership in which is based on scholarship and interest in dental research, and for which second-, third-, and fourth-year students are eligible. The society was organized in the School of Dental and Oral Surgery in 1920 and named after Dr. William Jarvie because of his wide interest in the promotion of dental research. The society aims to promote the spirit of research among the students.

THE STUDENT DENTAL ASSOCIATION

The Student Dental Association of Columbia University was established in 1960 to provide a professional and social forum in which the entire student body would participate. The general program of this organization is patterned after the program of local dental societies, in which the graduate dentist makes his contribution to the organized dental profession. The undergraduate dental student is exposed to the democratic process of organization function, policy development, and programming as he meets his responsibility for supporting the program of his association.

► GRADING SYSTEM AND REQUIREMENTS FOR PROMOTION

The following grading system is used: A, excellent; B, good; C, fair; F, failure.

A student may be admitted to the second, third, or fourth year of the dental curriculum only upon the recommendation of the officers of instruction under whom he has studied during the preceding year.

The School reserves the right to refuse readmission or promotion to any student who is believed for any reason to be unsuited to the conditions of study in the School.

Students are classified for readmission or promotion under the following categories: (1) recommended for advancement; (2) recommended for readmission to the same class; (3) recommended neither for advancement nor for readmission to the same class.

► GRADUATION

The degree of Doctor of Dental Surgery will be awarded upon completion of the prescribed curriculum. Diplomas are issued at the times stated in the Academic Calendar.

► LICENSE TO PRACTICE DENTISTRY IN NEW YORK STATE

Successful performances in Parts I and II of the examinations given by the Council of the National Board of Dental Examiners are preliminary requirements for licensure in most states of the United States including New York.

Those seeking licensure solely in New York State may take the final or clinical examinations offered by the Board of Dental Examiners of the State of New York. Successful completion of these examinations entitles the applicant to licensure, assuming the prerequisites of good moral character, citizenship, or declaration of intention of becoming a citizen, are fulfilled. For additional information request a copy of *Handbook 10, Professional Education*, from the Division of Professional Licensing Services, New York State Department of Education, Albany, New York 12201.

It is advisable, however, that candidates for licensure take the clinical examinations offered by the North East Regional Board of Dental Examiners, the content and format of which are identical to those of New York State. Successful completion of these examinations, together with fulfillment of such minor prerequisites as may be required by individual states, permits licensure in the states of Connecticut, Maine, Maryland, Massachusetts, New Hampshire, Pennsylvania, Vermont, and West Virginia, and the District of Columbia, as well as New York State.

Additional information, including applications, format of examinations, and examination schedules is available from the North East Regional Board of Dental Examiners, 4645 Deane Avenue, N.E., Washington, D.C. 20019.

Officers of Instruction

ANATOMY

CHAIRMAN: Professor Edward W. Dempsey

Ernest W. April. *Assistant Professor of Anatomy*

B.S., Tufts, 1961; Ph.D., Columbia, 1969

J. Michael Bedford. *Associate Professor of Anatomy*

B.A., Cambridge, 1958; M.A., Vet.M.B., M.R.C.V.S., 1958; Ph.D., London, 1965

Philip W. Brandt. *Associate Professor of Anatomy*

B.A., Swarthmore, 1952; M.S., Pennsylvania, 1957; Ph.D., Columbia, 1960

Malcolm B. Carpenter. *Professor of Anatomy*

B.A., Columbia, 1943; M.D., Long Island, 1947

George W. Cooper, Jr. *Assistant Professor of Anatomy*

B.A., Brown, 1958; Ph.D., Stanford, 1964

Edward W. Dempsey. *Professor of Anatomy*

B.A., Marietta, 1932; Sc.M., Brown, 1934; Ph.D., 1937; M.A., Harvard, 1946; Sc.D., Marietta, 1954

William G. Dilley. *Assistant Professor of Anatomy*

B.A., California (Berkeley), 1965; M.A., 1967; Ph.D., 1970

Marie D. Felix. *Assistant Professor of Anatomy*

B.S., American, 1956; M.S., Cornell, 1961; Ph.D., 1962

Ray C. Henrikson. *Assistant Professor of Anatomy*

B.Sc., Massachusetts, 1959; M.Sc., Brown, 1961; Ph.D., 1965

Farish A. Jenkins, Jr. *Assistant Professor of Anatomy*

B.A., Princeton, 1961; M.S., Yale, 1966; Ph.D., 1968

W. Patrick Luckett. *Assistant Professor of Anatomy*

B.A., Missouri, 1961; M.A., 1963; Ph.D., Wisconsin, 1967

Melvin L. Moss. *Professor of Anatomy*

B.A., New York University, 1942; D.D.S., Columbia, 1946; Ph.D., 1954

Charles R. Noback. *Professor of Anatomy*

B.S., Cornell, 1936; M.S., New York University, 1938; Ph.D., Minnesota, 1942

Letty Moss Salentijn. *Assistant Professor of Anatomy*

Tandarts, State University of Utrecht, 1967

S. C. Shen. *Assistant Professor of Anatomy*

B.S., Yenching, 1933; Ph.D., Cambridge, 1939

Alfonso Solimene. *Assistant Professor of Anatomy*

B.A., Brooklyn, 1954; M.A., Columbia, 1959; Ph.D., 1970

ANESTHESIOLOGY

CHAIRMAN: Professor S. H. Ngai

Ronald L. Katz. *Associate Professor of Anesthesiology*

B.S., Wisconsin, 1952; M.D., Boston, 1956

Lester C. Mark. *Professor of Anesthesiology*
M.D., Toronto, 1941

S. H. Ngai. *Professor of Anesthesiology*
M.B., National Central (China), 1944

BIOCHEMISTRY

CHAIRMAN: Professor Erwin Chargaff

Reinhold Benesch. *Professor of Biochemistry*
B.Sc., Leeds, 1941; M.Sc., 1945; Ph.D., Northwestern, 1950

Erwin Chargaff. *Professor of Biochemistry*
Ph.D., Vienna, 1928

Max A. Eisenberg. *Professor of Biochemistry*
B.A., Brooklyn, 1938; M.S., New York University, 1941; Ph.D., Duke, 1950

Philip Feigelson. *Professor of Biochemistry*
B.S., Queens (New York) 1947; Ph.D., Wisconsin, 1951

Allen M. Gold. *Associate Professor of Biochemistry*
B.A., Chicago, 1950; Ph.D., Harvard, 1955

John D. Karkas. *Assistant Professor of Biochemistry*
B.A., Thessaloniki (Greece), 1952; Ph.D., Columbia, 1962

Alvin I. Krasna. *Professor of Biochemistry*
B.A., Yeshiva, 1950; Ph.D., Columbia, 1955

Seymour Lieberman. *Professor of Biochemistry (assigned to Obstetrics and Gynecology)*
B.S., Brooklyn, 1936; M.S., Illinois, 1937; Ph.D., Stanford, 1941

Barbara W. Low. *Professor of Biochemistry*
B.A., Oxford, 1942; M.A., 1946; D.Phil., 1948

Richard W. Moyer. *Assistant Professor of Biochemistry*
B.S., Pennsylvania State, 1962; Ph.D., California (Los Angeles), 1967

Maurice Rapport. *Professor of Biochemistry (assigned to Psychiatry)*
B.S., College of the City of New York, 1940; Ph.D., California Institute of Technology, 1946

Lawrence E. Skogerson. *Assistant Professor of Biochemistry*
B.A., Grinnell, 1964; Ph.D., Pittsburgh, 1968

David J. Smith. *Associate Professor of Biochemistry (on leave, academic year)*
D.D.S., Columbia, 1944

David B. Sprinson. *Professor of Biochemistry*
B.S., College of the City of New York, 1931; M.S., New York University, 1936; Ph.D., Columbia, 1946

Parithychery Srinivasan. *Associate Professor of Biochemistry*
B.Sc., Madras, 1946; Ph.D., 1953

DENTAL AND ORAL SURGERY

CHAIRMAN: Professor Melvin L. Moss

ENDODONTICS

DIRECTOR: Professor Joseph M. Leavitt

Gerald H. Besen. *Adjunct Assistant Professor of Dentistry*
D.D.S., Minnesota, 1947

- Howard I. Blum. *Adjunct Assistant Professor of Dentistry*
B.A., Adelphi, 1956; D.D.S., Columbia, 1960
- Murray A. Cantor. *Adjunct Assistant Professor of Dentistry*
B.A., Hofstra, 1949; D.D.S., Columbia, 1953
- Marvin N. Firdman. *Assistant Clinical Professor of Dentistry*
B.A., New York University, 1948; D.D.S., Columbia, 1952
- Fredric E. Goodman. *Adjunct Assistant Professor of Dentistry*
D.D.S., Temple, 1962
- Joseph M. Leavitt. *Clinical Professor of Dentistry*
B.S., Oklahoma, 1936; D.D.S., Columbia, 1940
- William Miller. *Adjunct Assistant Professor of Dentistry*
B.S., Columbia, 1929; D.D.S., 1931
- S. Abel Moreinis. *Associate Clinical Professor of Dentistry*
D.D.S., Michigan, 1948
- Irving J. Naidorf. *Clinical Professor of Dentistry*
B.A., New York University, 1937; D.D.S., Columbia, 1941
- Fred Rothenberg. *Adjunct Associate Professor of Dentistry*
D.M.D., Goettingen, 1935; D.D.S., Pennsylvania, 1937
- Howard B. Vogel. *Adjunct Assistant Professor of Dentistry*
D.D.S., Columbia, 1950

INTERDISCIPLINARY CORRELATIONS

DIRECTOR AND COORDINATOR OF CLINICAL EDUCATION: Professor Herbert J. Bartelstone

- Herbert J. Bartelstone. *Professor of Dentistry and Professor of Pharmacology*
B.S., College of the City of New York, 1942; D.D.S., Columbia, 1945; Ph.D., 1960
- Harold M. Eiser. *Assistant Professor of Dentistry*
D.D.S., Temple, 1948; M.P.H., Michigan, 1969
- Hyman D. Koch. *Associate Professor of Dentistry*
B.S., Pittsburgh, 1937; D.D.S., 1937

OPERATIVE DENTISTRY

DIRECTOR: Professor Edward A. Cain, Jr.

- Roy Boelstler. *Assistant Clinical Professor of Dentistry*
B.A., Columbia, 1956; D.D.S., 1959
- Stanislaw H. Brzustowicz. *Adjunct Assistant Professor of Dentistry*
B.S., St. John's, 1940; D.D.S., Columbia, 1943
- Edward A. Cain, Jr. *Professor of Dentistry*
B.S., Fordham, 1942; D.D.S., Columbia, 1945
- Kenneth C. Deesen. *Adjunct Associate Professor of Dentistry*
D.D.S., Columbia, 1948
- Herbert P. Fritz. *Adjunct Assistant Professor of Dentistry*
B.S., New York University, 1933; D.D.S., Columbia, 1936
- Frank L. Mellana. *Adjunct Assistant Professor of Dentistry*
B.S., Fordham, 1956; D.D.S., Columbia, 1962

- Joseph A. Pianpiano. *Adjunct Assistant Professor of Dentistry*
B.S., Fordham, 1958; D.D.S., Columbia, 1962
- Thomas W. Portway. *Associate Professor of Dentistry (on leave, academic year)*
B.S., Fordham, 1950; D.D.S., Columbia, 1956
- George Rudensky. *Adjunct Assistant Professor of Dentistry*
D.D.S., Columbia, 1958
- Steven S. Scrivani. *Adjunct Associate Professor of Dentistry*
D.D.S., Columbia, 1948
- William H. Silverstein. *Adjunct Associate Professor of Dentistry*
D.D.S., Maryland, 1937

ORAL BIOLOGY

DIRECTOR: Professor Sam M. Beiser

- Sam M. Beiser. *Professor of Microbiology and Professor of Oral Biology*
B.S., College of the City of New York, 1942; Ph.D., Columbia, 1951
- Abraham Greenberg. *Adjunct Assistant Professor of Dentistry*
D.D.S., Temple, 1931
- Melvin L. Moss. *Professor of Anatomy*
B.A., New York University, 1942; D.D.S., Columbia, 1946; Ph.D., 1954
- Herbert P. Ostreicher. *Assistant Clinical Professor of Dentistry*
B.A., Columbia, 1943; D.D.S., 1945
- Philip Person. *Adjunct Professor of Oral Biology*
B.S., College of the City of New York, 1940; D.D.S., New York University, 1946; M.S., Rutgers, 1951
- Spyros Vratsanos. *Assistant Professor of Microbiology and Assistant Professor of Oral Biology*
B.S., Athens, 1950; M.S., Adelphi, 1956; Ph.D., Fordham, 1961

ORAL SURGERY

DIRECTORS: Professors Louis J. Loscalzo, Louis Mandel, and George A. Minervini

- Julien W. Anderson. *Adjunct Assistant Professor of Dentistry*
D.D.S., Howard, 1949
- Reynold J. Baumstark. *Associate Clinical Professor of Dentistry*
B.A., Holy Cross, 1959; D.D.S., Columbia, 1963
- Harold D. Baurmash. *Adjunct Associate Professor of Dentistry*
D.D.S., Columbia, 1948
- Kourken A. Daglian. *Adjunct Assistant Professor of Dentistry*
B.S., College of the City of New York, 1941; D.D.S., Columbia, 1943
- Rudolph H. Friedrich. *William Carr Professor of Oral Surgery*
D.D.S., Northwestern, 1930
- Bertram Klatskin. *Adjunct Assistant Professor of Dentistry*
B.A., Cornell, 1937; D.D.S., Columbia, 1941
- Louis J. Loscalzo. *Adjunct Professor of Dentistry*
B.A., Fordham, 1942; D.D.S., Temple, 1946

Louis Mandel. *Adjunct Associate Professor of Dentistry*

B.A., New York University, 1943; D.D.S., Columbia, 1946

George A. Minervini. *Adjunct Associate Professor of Dentistry*

B.A., Columbia, 1942; D.D.S., 1946

Daniel D. Schube. *Adjunct Assistant Professor of Dentistry*

B.A., Brooklyn, 1945; D.D.S., New York University, 1949

Boaz M. Shattan. *Adjunct Assistant Professor of Dentistry*

B.A., Columbia, 1940; D.D.S., 1943

Morton Jay Stern. *Adjunct Assistant Professor of Dentistry*

B.A., Upsala, 1949; D.D.S., Temple, 1953

At Grasslands Hospital:

Manuel M. Maslansky. *Adjunct Professor of Dentistry*

D.D.S., Columbia, 1928

At Roosevelt Hospital:

Andrew M. Linz. *Clinical Professor of Dentistry*

D.D.S., Pennsylvania, 1948; M.Sc. (Dent.), 1953

Peter B. Terenzio. *Adjunct Professor of Dentistry*

L.L.B., Connecticut, 1940; M.H.A., Northwestern, 1950

OROFACIAL GROWTH AND DEVELOPMENT

DIRECTOR: Professor Sidney L. Horowitz

Theodore Adler. *Adjunct Assistant Professor of Dentistry*

D.D.S., Pennsylvania, 1950

Alice J. Chabora. *Assistant Clinical Professor of Dentistry*

B.S., Cornell, 1964; M.S., 1965; Ph.D., 1967

Sidney L. Horowitz. *Professor of Dentistry*

B.S., Columbia, 1942; D.D.S., New York University, 1945

Edward C. McNulty. *Adjunct Assistant Professor of Dentistry*

B.S., Holy Cross, 1957; D.M.D., Harvard, 1962

ORTHODONTICS

DIRECTOR: Professor Nicholas A. Di Salvo

Alfred J. Braida. *Adjunct Assistant Professor of Dentistry*

D.D.S., Georgetown, 1947

Jack M. Breuer. *Adjunct Assistant Professor of Dentistry*

B.A., Columbia, 1946; D.D.S., 1949

Nicholas A. Di Salvo. *Professor of Dentistry*

B.S., College of the City of New York, 1942; D.D.S., Columbia, 1945; Ph.D., 1952

Monroe M. Gliedman. *Adjunct Assistant Professor of Dentistry*

B.S., Massachusetts Institute of Technology, 1946; D.D.S., Columbia, 1952

Richard Gliedman. *Adjunct Assistant Professor of Dentistry*

B.S., Massachusetts Institute of Technology, 1946; D.D.S., Columbia, 1952

- James B. Horn. *Assistant Professor of Dentistry*
B.A., Hofstra, 1953; D.D.S., Columbia, 1957
- Jacob I. Kaplan. *Adjunct Assistant Professor of Dentistry*
B.A., New York University, 1938; D.D.S., Columbia, 1943
- Gustave Lasoff. *Adjunct Assistant Professor of Dentistry*
B.S., College of the City of New York, 1940; D.D.S., Medical College of Virginia, 1944
- Milton P. Merritt. *Adjunct Assistant Professor of Dentistry*
B.A., Columbia, 1955; D.D.S., 1958
- Eugene F. Murphy. *Adjunct Assistant Professor of Dentistry*
B.S., Xavier, 1953; D.D.S., St. Louis, 1957
- Henry I. Nahoum. *Associate Professor of Dentistry*
B.A., Brooklyn, 1940; D.D.S., Columbia, 1943
- Armand M. Oppenheimer. *Adjunct Associate Professor of Dentistry*
B.A., College of the City of New York, 1926; B.S., Columbia, 1927; D.D.S., 1929
- Bert B. Schoeneman. *Adjunct Assistant Professor of Dentistry*
B.A., Alabama, 1935; D.D.S., Columbia, 1939
- Alexander B. Smith. *Adjunct Assistant Professor of Dentistry*
D.D.S., Columbia, 1943
- Walter G. Spengeman. *Adjunct Associate Professor of Dentistry*
B.A., Columbia, 1938; D.D.S., 1941
- Julius Tarshis. *Adjunct Associate Professor of Dentistry*
D.D.S., Pennsylvania, 1949
- Edward E. Teltsch. *Adjunct Associate Professor of Dentistry*
B.A., Columbia, 1932; D.D.S., Buffalo, 1936
- Russel J. Vanacek. *Adjunct Assistant Professor of Dentistry*
D.D.S., Pennsylvania, 1954
- Clifford L. Whitman. *Adjunct Professor of Dentistry*
D.D.S., Maryland, 1927

PEDODONTICS

DIRECTOR: Professor Solomon N. Rosenstein

- Marc Louis Berg. *Adjunct Assistant Professor of Dentistry*
D.D.S., Columbia, 1949
- Albert Green. *Adjunct Assistant Professor of Dentistry*
B.A., Temple, 1950; D.D.S., Pennsylvania, 1954
- Marvin B. King. *Adjunct Assistant Professor of Dentistry*
D.D.S., New York University, 1954
- Seymour Koster. *Adjunct Assistant Professor of Dentistry*
B.A., New York University, 1945; D.D.S., 1949
- Philip Kutner. *Adjunct Assistant Professor of Dentistry*
B.S., College of the City of New York, 1944; D.D.S., Columbia, 1951
- Bernard Nathanson. *Adjunct Associate Professor of Dentistry*
B.S., New York University, 1929; D.D.S., Columbia, 1932
- Arnold Rosenberg. *Adjunct Associate Professor of Dentistry*
B.S., New York University, 1943; D.D.S., 1945
- Solomon N. Rosenstein. *Professor of Dentistry*
B.S., College of the City of New York, 1929; D.D.S., Columbia, 1930

Julian Schroff. *Adjunct Assistant Professor of Dentistry*

B.S., College of the City of New York, 1930; D.D.S., Columbia, 1934

William A. Verlin. *Adjunct Assistant Professor of Dentistry*

B.A., Columbia, 1929; D.D.S., Columbia, 1931

David H. Wolmer. *Adjunct Assistant Professor of Dentistry*

B.A., Hunter, 1955; D.D.S., Columbia, 1958

PERIODONTICS

DIRECTOR: Professor Robert Gottsegen

Seymour Albus. *Adjunct Assistant Professor of Dentistry*

B.A., Brooklyn, 1943; D.D.S., Pennsylvania, 1946

Michael Baron. *Adjunct Assistant Professor of Dentistry*

D.D.S., Georgetown, 1968

Charles L. Berman. *Adjunct Assistant Professor of Dentistry*

D.D.S., New York University, 1952

Frank E. Beube. *Adjunct Professor of Dentistry*

L.D.S., D.D.S., Toronto, 1930

Robert D. Blank. *Assistant Clinical Professor of Dentistry*

D.M.D., Pennsylvania, 1965

Herman Cantor. *Adjunct Assistant Professor of Dentistry*

B.S., New York University, 1934; D.D.S., 1937

Alvin D. Cederbaum. *Adjunct Assistant Professor of Dentistry*

D.M.D., Tufts, 1939

Neal W. Chilton. *Adjunct Professor of Dentistry*

B.S., College of the City of New York, 1939; D.D.S., New York University, 1943; M.P.H., Columbia, 1946

Raymond Z. Darakjian. *Assistant Professor of Dentistry*

D.D.S., Fairleigh Dickinson, 1968

P. Charles Gabriele. *Adjunct Assistant Professor of Dentistry*

B.A., Brooklyn, 1956; D.D.S., Pennsylvania, 1958

Arnold M. Geiger. *Adjunct Assistant Professor of Dentistry*

B.A., New York University, 1938; D.D.S., Pennsylvania, 1941

Robert S. Goldman. *Assistant Clinical Professor of Dentistry*

B.A., Temple, 1963; D.M.D., Pittsburgh, 1968

Stephen F. Goodman. *Adjunct Assistant Professor of Dentistry*

D.D.S., Pennsylvania, 1960

Robert Gottsegen. *Professor of Dentistry*

B.A., Michigan, 1939; D.D.S., Columbia, 1943

Leonard Hirschfeld. *Adjunct Professor of Dentistry*

B.A., Columbia, 1941; D.D.S., 1944

Ellen N. Hosiosky. *Adjunct Associate Professor of Dentistry*

D.M.D., Basle, 1935; D.H., Guggenheim Dental Clinic, 1939; D.D.S., Columbia, 1947

Raymond F. Johnson. *Adjunct Assistant Professor of Dentistry*

D.D.S., Pennsylvania, 1952

Irving A. Karel. *Adjunct Assistant Professor of Dentistry*

D.D.S., Temple, 1956

- Burton Langer. *Assistant Clinical Professor of Dentistry*
B.S., Tufts, 1960; D.M.D., 1964; M.Sc.D., Boston University, 1966
- Walter I. Lipow. *Adjunct Assistant Professor of Dentistry*
D.D.S., Columbia, 1961
- David M. Monahan. *Adjunct Assistant Professor of Dentistry*
D.D.S., St. Louis University, 1963
- Melvin L. Morris. *Adjunct Professor of Dentistry*
B.S., College of the City of New York, 1934; M.A., Columbia, 1937; D.D.S., 1941
- Bernard S. Moskow. *Adjunct Associate Professor of Dentistry*
D.D.S., Temple, 1954; M.Sc.D., Pennsylvania, 1958
- Ronald B. Odrich. *Adjunct Assistant Professor of Dentistry*
B.S., Queens (New York), 1958; D.D.S., Columbia, 1959
- Herbert I. Oshrain. *Adjunct Associate Professor of Dentistry*
B.S., College of the City of New York, 1938; D.D.S., New York University, 1942
- Morton C. Rennert. *Adjunct Assistant Professor of Dentistry*
B.A., Columbia, 1955; D.D.S., 1958
- Marvin V. Rubin. *Adjunct Assistant Professor of Dentistry*
D.D.S., Pennsylvania, 1945
- Albert Salkind. *Adjunct Assistant Professor of Dentistry*
D.D.S., Marquette, 1943
- Michael B. Savin. *Adjunct Assistant Professor of Dentistry*
B.A., Rochester, 1961; D.M.D., Pennsylvania, 1965
- Murray Schwartz. *Associate Clinical Professor of Dentistry*
B.A., New York University, 1950; D.D.S., Columbia, 1953
- Marvin Solomon. *Adjunct Assistant Professor of Dentistry*
B. Chem. Eng., College of the City of New York, 1960; D.D.S., Fairleigh Dickinson, 1965
- Marvin Spodek. *Adjunct Assistant Professor of Dentistry*
B.S., Brooklyn College, 1952; D.D.S., Columbia, 1956
- Stephen D. Stein. *Adjunct Assistant Professor of Dentistry*
B.A., New York University, 1962; D.D.S., 1966
- Bernard H. Wasserman. *Adjunct Associate Professor of Dentistry*
B.A., Brooklyn, 1941; D.D.S., Columbia, 1944

PREVENTIVE DENTISTRY AND COMMUNITY HEALTH

DIRECTOR: Professor Irwin D. Mandel

- Harold L. Applewhite. *Associate Professor of Dentistry*
D.D.S., Howard, 1948; M.P.H., Columbia, 1967
- Lillian H. Bachman. *Adjunct Assistant Professor of Dentistry*
B.S., Queens (New York); 1959; D.D.S., Columbia, 1963; M.A., 1967
- Samuel F. Dworkin. *Associate Professor of Dentistry*
B.S., College of the City of New York, 1954; D.D.S., New York University, 1958; Ph.D., 1969
- Daniel H. Fine. *Assistant Professor of Dentistry*
B.S., Queens (New York), 1961; D.M.D., Pennsylvania, 1965
- Morton A. Fisher. *Adjunct Professor of Dentistry*
B.S., Western Reserve, 1943; D.D.S., 1944; M.P.H., Columbia, 1957; B.A., Brooklyn, 1958
- David Kaplan. *Assistant Professor of Dentistry*
B.S., College of the City of New York, 1958; D.D.S., New York University, 1960

- Irwin D. Mandel. *Professor of Dentistry*
B.S., College of the City of New York, 1942; D.D.S., Columbia, 1945
- George L. O'Grady. *Professor of Dentistry*
B.A., Fordham, 1929; D.D.S., Columbia 1934
- Milton Potters. *Adjunct Assistant Professor of Dentistry*
D.D.S., Pennsylvania, 1944; B.A., Rutgers, 1951
- Kenneth L. Siegel. *Adjunct Assistant Professor of Dentistry*
B.A., Dartmouth, 1960; D.D.S., Columbia, 1964
- David A. Soricelli. *Adjunct Professor of Dentistry*
D.D.S., Temple, 1955; M.P.H., Harvard, 1958
- Ephraim Weinstein. *Adjunct Assistant Professor of Dentistry*
D.D.S., Pennsylvania, 1959
- Stephen Wotman. *Associate Professor of Dentistry*
D.D.S., Pennsylvania, 1956
- Albert Zengo. *Assistant Professor of Dentistry*
B.S., Tufts, 1959; D.D.S., Columbia, 1964

PROSTHODONTICS

DIRECTOR: Professor John J. Lucca

- Jacob Abelson. *Adjunct Assistant Professor of Dentistry*
B.S., College of the City of New York, 1941; D.D.S., Columbia, 1945
- Howard A. Arden. *Associate Professor of Dentistry*
- Herbert D. Ayers. *Associate Professor of Dentistry*
B.A., Columbia, 1929; D.D.S., 1931
- Henry Barnaby, Jr. *Adjunct Assistant Professor of Dentistry*
D.D.S., Columbia, 1961
- Victor S. Caronia. *Associate Professor of Dentistry (on leave, academic year)*
D.D.S., Columbia, 1957
- Joseph A. De Julia. *Assistant Clinical Professor of Dentistry*
B.S., Pittsburgh, 1951; D.D.S., Columbia, 1962
- Joseph C. De Lisi. *Adjunct Associate Professor of Dentistry*
D.D.S., Columbia, 1952
- Gustav T. Durrer. *Adjunct Assistant Professor of Dentistry*
Dr. Med. Dent., Berne, 1937; D.D.S., Pennsylvania, 1940
- Gerald M. Galvin. *Adjunct Assistant Professor of Dentistry*
B.S., St. John's (Brooklyn), 1952; D.D.S., Columbia, 1956
- Joel Goldin. *Assistant Clinical Professor of Dentistry*
B.A., Amherst, 1959; D.M.D., Harvard, 1963
- George W. Hindels. *Adjunct Associate Professor of Dentistry*
M.D., Vienna, 1938; D.D.S., Columbia, 1943
- Arnold S. Jutkowitz. *Assistant Clinical Professor of Dentistry*
D.M.D., Pennsylvania, 1966
- John J. Lucca. *Professor of Dentistry*
B.A., New York University, 1941; D.D.S., Columbia, 1947

- William J. Miller. *Adjunct Associate Professor of Dentistry*
B.A., New York University, 1940; D.D.S., Columbia, 1943
- William Raebeck, Jr. *Adjunct Assistant Professor of Dentistry*
B.S., Colgate, 1948; D.D.S., Columbia, 1947
- Louis I. Rubins. *Adjunct Assistant Professor of Dentistry*
B.S., Queens (New York), 1956; D.D.S., Columbia, 1960
- John M. Scarola. *Adjunct Assistant Professor of Dentistry*
B.S., Fordham, 1956; D.D.S., Columbia, 1960
- Peter H. Strife, II. *Adjunct Assistant Professor of Dentistry*
B.A., Middlebury, 1959; D.D.S., Pennsylvania, 1959
- Ennio L. Uccellani. *Associate Professor of Dentistry*
B.S., College of the City of New York, 1946; D.D.S., Columbia, 1948
- Maxwell Widrow. *Assistant Clinical Professor of Dentistry*
D.D.S., Temple, 1940

At Grasslands Hospital:

- Morris Eckhaus. *Adjunct Associate Professor of Dentistry*
D.D.S., Columbia, 1936
- Max P. Fishberg. *Adjunct Associate Professor of Dentistry*
B.S., College of the City of New York, 1941; D.D.S., New York University, 1944
- Robert E. Herlands. *Adjunct Professor of Dentistry*
B.A., Columbia, 1941; D.D.S., 1944

PSYCHIATRIC DENTAL SERVICE

DIRECTOR: Professor Austin H. Kutscher

- Martin Bassiur. *Adjunct Assistant Professor of Dentistry*
B.A., New York University, 1964; D.D.S., 1968
- Gary D. Gross. *Adjunct Assistant Professor of Dentistry*
B.A., Cornell, 1962; D.D.S., New York University, 1966
- Herman S. Harris. *Adjunct Assistant Professor of Dentistry*
D.D.S., New York University, 1929
- Austin H. Kutscher. *Associate Professor of Dentistry*
B.S., New York University, 1945; D.D.S., Columbia, 1946
- Harold P. Rose. *Adjunct Assistant Professor of Dentistry*
D.M.D., Tufts, 1937
- Arthur Shain. *Adjunct Assistant Professor of Dentistry*
B.S., New York University, 1935; D.D.S., Dalhousie, 1939
- Ann R. Turkel. *Adjunct Assistant Professor of Dentistry*
B.A., Barnard, 1947; M.D., Albany Medical College, 1952
- Jay Weiss. *Adjunct Assistant Professor of Dentistry*
B.A., Harvard, 1948; D.M.D., Tufts, 1952

STOMATOLOGY

DIRECTOR: Professor Edward V. Zegarelli

- Martin I. Ames. *Adjunct Assistant Professor of Dentistry*
B.A., New York University, 1945; D.D.S., 1949

Jack Budowsky. *Clinical Professor of Dentistry*

D.D.S., Columbia, 1943

Robert E. Crowley. *Adjunct Associate Professor of Dentistry*

B.A., New York University, 1936; D.D.S., 1939

Joseph A. Cuttita. *Professor of Dentistry*

B.A., Fordham, 1932; M.S., 1935; D.D.S., Columbia, 1939

John V. Donovan. *Adjunct Assistant Professor of Dentistry*

B.S., Wagner, 1963; D.D.S., Columbia, 1967

Frances R. Karlan. *Adjunct Assistant Professor of Dentistry*

B.S., Massachusetts Institute of Technology, 1942; D.D.S., Columbia, 1949

Mortimer Karmiöl. *Adjunct Associate Professor of Dentistry*

B.S., College of the City of New York, 1939; D.D.S., Columbia, 1943

Paul Kornfeld. *Adjunct Assistant Professor of Dentistry*

B.A., Alfred, 1941; D.D.S., Buffalo, 1944

Austin H. Kutscher. *Associate Professor of Dentistry*

B.S., New York University, 1945; D.D.S., Columbia, 1946

Laurence J. Levine. *Assistant Clinical Professor of Dentistry*

D.D.S., Columbia, 1968

John K. Lind. *Adjunct Associate Professor of Dentistry*

B.S., St. John's, 1951; D.D.S., Columbia, 1957

Michael Z. Marder. *Assistant Clinical Professor of Dentistry*

D.D.S., Columbia, 1963

Robert N. Schiff. *Adjunct Assistant Professor of Dentistry*

B.A., Columbia, 1955; D.D.S., 1956

Diane Stern. *Adjunct Assistant Professor of Dentistry*

B.A., Hunter, 1958; D.D.S., Columbia, 1961

Robert Umans. *Adjunct Associate Professor of Dentistry*

D.D.S., New York University, 1939

Robert F. Walsh. *Adjunct Associate Professor of Dentistry*

D.D.S., Columbia, 1947

Edward V. Zegarelli. *Edwin S. Robinson Professor of Dentistry*

B.A., Columbia, 1934; D.D.S., 1937; M.S., Chicago, 1943

Edward Zerden. *Adjunct Assistant Professor of Dentistry*

B.A., Michigan, 1941; D.D.S., New York University, 1945

Section of Special Dental Services

Morton S. Brod. *Adjunct Assistant Professor of Dentistry*

B.A., Adelphi, 1951; D.D.S., Columbia, 1955

Sebastian A. Bruno. *Adjunct Associate Professor of Dentistry*

D.M.D., Tufts, 1948

Alvin J. Grayson. *Adjunct Assistant Professor of Dentistry*

D.D.S., Indiana, 1952

Eugene P. LaSota. *Adjunct Assistant Professor of Dentistry*

B.A., Hofstra, 1957; D.D.S., Columbia, 1961

Joseph Luban. *Adjunct Assistant Professor of Dentistry*

B.S., College of the City of New York, 1938; D.D.S., Columbia, 1942

Joseph J. Marbach. *Adjunct Associate Professor of Dentistry*

B.A., Drew, 1956; D.D.S., Pennsylvania, 1960

Philip J. Santora, Jr. *Adjunct Assistant Professor of Dentistry*

B.S., Cincinnati, 1962; D.M.D., New Jersey College of Dentistry, 1966

David Zeisler. *Adjunct Assistant Professor of Dentistry*

B.S., College of the City of New York, 1930; D.D.S., Columbia, 1934

DERMATOLOGY

CHAIRMAN: Professor Carl T. Nelson

Carl T. Nelson. *Professor of Dermatology*

B.A., Harvard, 1935; M.A., 1937; M.D., 1941

Saul L. Sanders. *Clinical Professor of Dermatology*

B.A., Kenyon, 1950; M.D., Cornell, 1954

Meyer H. Slatkin. *Assistant Clinical Professor of Dermatology*

B.S., College of the City of New York, 1935; M.D., Edinburgh, 1940

Richard A. Walzer. *Associate Clinical Professor of Dermatology*

B.A., Harvard, 1952; M.D., Columbia, 1956

MEDICINE

CHAIRMAN: Professor Charles A. Ragan

Henry Aranow, Jr. *Professor of Clinical Medicine*

B.A., Harvard, 1935; M.D., Columbia, 1938

Leslie Baer. *Assistant Professor of Medicine*

B.A., Wisconsin, 1959; M.D., Columbia, 1963

Stuart W. Cosgriff. *Associate Professor of Clinical Medicine*

B.A., Holy Cross, 1938; M.D., Columbia, 1942

David J. Gocke. *Associate Professor of Clinical Medicine*

B.A., St. Vincent's, 1954; M.D., Pennsylvania, 1958

Wendell B. Hatfield. *Assistant Professor of Clinical Medicine*

B.A., Columbia, 1953; M.D., 1956

Donald A. Holub. *Associate Professor of Clinical Medicine*

B.A., Columbia, 1949; M.D., 1952

George A. Hyman. *Assistant Clinical Professor of Medicine*

B.A., Columbia, 1942; M.D., 1945

Edgar Leifer. *Associate Professor of Clinical Medicine*

B.S., College of the City of New York, 1937; M.A., Columbia, 1939; Ph.D., 1941; M.D., 1946

Jane H. Morse. *Assistant Professor of Medicine*

B.A., Smith, 1951; M.D., Columbia, 1955

Hans W. Neuberg. *Assistant Professor of Clinical Medicine*

B.A., Wagner, 1941; M.D., Columbia, 1950

Hymie L. Nossel. *Associate Professor of Medicine*

M.B., Ch.B., Cape Town, 1953; Ph.D., Oxon, 1962

Kermit L. Pines. *Associate Professor of Clinical Medicine*

B.A., Columbia, 1937; M.D., 1942

MICROBIOLOGY

CHAIRMAN: Professor Harry M. Rose

Sam M. Beiser. *Professor of Microbiology and Professor of Oral Biology*

B.S., College of the City of New York, 1942; Ph.D., Columbia, 1951

Joe E. Coward. *Assistant Professor of Microbiology*

B.S.E., State College of Arkansas, 1959; M.S., Arkansas, 1962; Ph.D., Mississippi School of Medicine, 1968

Paul D. Ellner. *Professor of Microbiology*

B.S., Long Island, 1949; M.S., Southern California, 1952; Ph.D., Maryland, 1956

Bernard F. Erlanger. *Professor of Microbiology*

B.S., College of the City of New York, 1943; M.A., New York University, 1949; Ph.D., Columbia, 1951

Gabriel C. Godman. *Professor of Microbiology and Pathology*

B.A., New York University, 1941; M.D., 1944

Donald H. Harter. *Associate Professor of Neurology*

B.A., Pennsylvania, 1953; M.D., Columbia, 1957

Calderon Howe. *Professor of Microbiology*

B.A., Yale, 1938; M.D., Harvard, 1942

Elvin A. Kabat. *Professor of Microbiology and Human Genetics and Development*

B.S., College of the City of New York, 1932; M.A., Columbia, 1934; Ph.D., 1937

Wladislaw Manski. *Associate Professor of Microbiology*

M.Phil., Warsaw, 1939; D.Sc., Wroclaw, 1951

Councilman Morgan. *Professor of Microbiology*

B.S., Harvard, 1943; M.D., Columbia, 1946

Harry M. Rose. *John E. Borne Professor of Medical and Surgical Research*

B.A., Yale, 1928; M.D., Cornell, 1932

Herbert Rosenkranz. *Professor of Microbiology*

B.S., College of the City of New York, 1954; Ph.D., Cornell, 1959

Stuart W. Tanenbaum. *Professor of Microbiology*

B.S., College of the City of New York, 1944; Ph.D., Columbia, 1951

Spyros M. Vratsanos. *Assistant Professor of Microbiology and Assistant Professor of Oral Biology*

B.S., Athens, 1950; M.S., Adelphi, 1956; Ph.D., Fordham, 1961

PATHOLOGY

CHAIRMAN: Professor Donald West King

Giles G. Allard. *Assistant Clinical Professor of Pathology*

M.D., Laval (Canada), 1950

Lucretia Allen. *Assistant Clinical Professor of Pathology*

B.A., New York University, 1948; M.D., S.U.N.Y., 1952

Irwin Almenoff. *Associate Clinical Professor of Pathology*

B.S., College of the City of New York, 1948; M.D., Cornell, 1952

Henry A. Azar. *Associate Professor of Pathology*

B.A., American (Lebanon), 1948; M.D., 1952

Ernest Baden. *Assistant Clinical Professor of Pathology*

M.A., Sorbonne, 1946; D.D.S., New York University, 1950; M.D., Geneva, 1963

- Daniel Benninghoff. *Associate Clinical Professor of Pathology*
B.A., Yale, 1949; M.D., Columbia, 1953
- William Bernhard. *Assistant Clinical Professor of Pathology*
B.S., Wisconsin, 1927; M.D., Pennsylvania, 1931
- Melvin N. Blake. *Associate Clinical Professor of Oral Pathology*
D.D.S., New York University, 1955
- William A. Blanc. *Professor of Pathology*
B.A., Geneva, 1940; M.D., 1947; Ph.D., 1952
- Donald E. Brown. *Associate Clinical Professor of Pathology*
M.D., Harvard, 1943
- John M. Budinger. *Associate Clinical Professor of Pathology*
B.S., Northwestern, 1950; M.D., 1954
- David Cowen. *Professor of Neuropathology*
B.A., Columbia, 1928; M.D., 1936
- Richard Defendini. *Assistant Professor of Neuropathology*
B.A., Michigan, 1948; M.A., 1951; M.D., Rochester, 1961
- Arline D. Deitch. *Assistant Professor of Pathology*
B.A., Brooklyn College, 1944; M.A., Columbia, 1946; Ph.D., 1954
- Philip Duffy. *Professor of Neuropathology*
B.A., Columbia, 1943; M.D., 1947
- Stefan E. Epstein. *Assistant Clinical Professor of Pathology*
B.A., Columbia, 1956; M.D., State University of New York, 1960
- Mehdi Farhangi. *Assistant Professor of Pathology*
M.D., Teheran Medical School, 1957
- Joshua A. Fierer. *Assistant Professor of Pathology*
B.A., Alfred, 1959; M.D., State University of New York, 1963
- Vincent J. Freda. *Assistant Professor of Clinical Obstetrics and Gynecology*
B.A., Columbia, 1948; M.D., New York University, 1952
- S. Raymond Gambino. *Professor of Pathology*
B.S., Antioch, 1948; M.D., Rochester, 1952
- Lester M. Geller. *Assistant Professor of Neuropathology*
B.A., Cornell, 1947; M.A., Michigan State, 1948; Ph.D., New York University, 1953
- Gabriel Godman. *Professor of Pathology*
B.A., New York University, 1941; M.D., 1944
- Reba M. Goodman. *Assistant Professor of Pathology*
B.A., Indiana, 1949; Ph.D., Columbia, 1955
- John G. Gorman. *Clinical Professor of Pathology*
M.B., B.S., Melbourne, 1953
- Liselotte Graf. *Assistant Professor of Pathology*
M.D., Vienna, 1937
- Ross M. Grey. *Associate Professor of Pathology*
D.V.M., Alabama Polytechnical Institute, 1945
- Elliott M. Gross. *Assistant Clinical Professor of Pathology*
B.A., Columbia, 1955; M.D., New York University, 1959
- Stanley Gross. *Associate Clinical Professor of Pathology*
B.S., New York University, 1936; M.D., 1939
- Don V. Hellerman. *Assistant Clinical Professor of Pathology*
B.S., Springfield College, 1957; M.D., New York Medical College, 1961

- Victor D. Herbert. *Clinical Professor of Pathology*
B.S., Columbia, 1948; M.D., 1952
- Robert L. Hirsch. *Associate Clinical Professor of Pathology*
B.A., Cornell, 1947; M.D., 1951
- Harry L. Ioachim. *Associate Clinical Professor of Pathology*
M.D., Bucharest, 1949
- Austin D. Johnston. *Associate Professor of Pathology (assigned to Orthopedic Surgery)*
B.A., Columbia, 1945; M.D., 1947
- Julian I. Joseph. *Assistant Clinical Professor of Pathology*
M.D., New York University, 1955
- Mavis Kaufman. *Associate Professor of Neuropathology (assigned to Psychiatry)*
M.D., New York Medical College, 1944
- Hans Kaunitz. *Clinical Professor of Pathology*
M.D., Vienna, 1930
- Gordon I. Kaye. *Associate Professor of Surgery*
B.A., Columbia, 1955; M.A., 1957; Ph.D., 1961
- Mary Elizabeth King. *Assistant Professor of Pathology*
B.A., Smith, 1947; M.D., Columbia, 1951
- Janis V. Klavins. *Clinical Professor of Pathology*
M.D., Kiehl (Germany), 1948
- Nathan Lane. *Professor of Surgical Pathology*
B.A., Columbia, 1943; M.D., 1945
- Raffaele Lattes. *Professor of Surgical Pathology*
M.D., Turin, 1933; Med.Sc.D., Columbia, 1946
- Robert W. Leader. *Clinical Professor of Pathology*
B.S., Washington State, 1952; D.V.M., 1952, M.S., 1955
- William L. McLellan. *Assistant Professor of Pathology*
B.A., Boston, 1951; M.A., 1954; Ph.D., 1957
- Hiroshi Nakazawa. *Assistant Clinical Professor of Pathology*
M.D., Keio (Japan), 1958
- Elliott F. Osserman. *Professor of Pathology*
B.A., Columbia, 1945; M.D., 1947
- M. Richard Pachter. *Assistant Clinical Professor of Pathology*
M.D., Zurich, 1956
- Robert Pascal. *Assistant Professor of Pathology*
B.A., Columbia, 1958; M.D., 1962
- Karl H. Perzin. *Assistant Professor of Surgical Pathology*
B.A., Columbia, 1954; M.D., 1958
- William Pollack. *Assistant Professor of Pathology*
B.Sc., London, 1948; M.Sc., 1950; Ph.D., Rutgers, 1964
- Ralph M. Richart. *Professor of Pathology (assigned to Obstetrics & Gynecology)*
B.A., Johns Hopkins, 1954; M.D., Rochester, 1958
- Leon Roizin. *Professor of Neuropathology (assigned to Psychiatry)*
B.A., State Lyceum (Bessarabia), 1930; M.D., Royal University (Milan), 1936
- Sarkis S. Sarkisian. *Assistant Clinical Professor of Pathology*
M.D., Illinois, 1942

- Henry G. Schriever. *Assistant Clinical Professor of Pathology*
B.A., Vermont, 1956; M.D., New York Medical College, 1960
- Paul P. Sher. *Assistant Professor of Pathology*
B.S., Hobart, 1961; M.D., Washington University (St. Louis), 1965
- Stanley S. Simbonis. *Associate Clinical Professor of Pathology*
B.S., Yale, 1953; M.D., 1957
- Ralph Wood Snyder. *Assistant Clinical Professor of Pathology*
B.S., McGill, 1951; M.D.C.M., 1953
- Harold J. Sobel. *Associate Clinical Professor of Pathology*
B.A., Brooklyn, 1950; Chicago Medical School, 1954
- Sheldon C. Sommers. *Clinical Professor of Pathology*
M.D., Harvard, 1941
- David Spain. *Clinical Professor of Pathology*
B.S., Maryland, 1932; M.D., 1936
- Herbert Stoerk. *Professor of Pathology*
M.D., Vienna, 1938
- Harry H. Stumpf. *Associate Professor of Pathology*
B.A., New York University, 1947; M.D., State University of New York, 1951
- Richard L. Swarm. *Associate Clinical Professor of Pathology*
B.A., Washington (St. Louis), 1949; M.D., 1950
- Myron Tannenbaum. *Associate Professor of Pathology (assigned to Urology)*
B.S., New York University, 1952; M.S., 1955; Ph.D., 1957; M.D., Chicago, 1961
- Virginia Tennyson. *Associate Professor of Neuropathology*
B.S., Pennsylvania State, 1946; M.S., Baylor, 1956; Ph.D., Columbia, 1960
- John A. Terzakis. *Assistant Clinical Professor of Pathology*
M.D., New York University, 1961
- Myron E. Tracht. *Associate Clinical Professor of Pathology*
B.A., Princeton, 1948; M.S., Chicago, 1954; M.D., 1955
- John L. Tullis. *Associate Clinical Professor of Pathology*
B.A., Yale, 1933; M.D., Columbia, 1938
- Henry J. Vogel. *Professor of Microbiology*
B.S., London, 1939; M.S., New York University, 1941; Ph.D., 1949
- Ruth H. Vogel. *Assistant Professor of Pathology*
Ph.D., New York University, 1948
- Bernard M. Wagner. *Professor of Pathology*
M.D., Hahnemann, 1949
- H. Joachim Wigger. *Assistant Professor of Pathology*
M.D., Hamburg, 1954
- Sigmund Wilens. *Professor of Pathology*
Ph.D., Yale, 1926; M.D., 1929
- George Wilner. *Assistant Professor of Pathology*
B.S., Northwestern, 1962; M.D., 1965
- Marianne Wolff. *Associate Professor of Surgery*
B.A., Hunter, 1948; M.D., Columbia, 1952
- Kaity Yannopoulos. *Assistant Clinical Professor of Pathology*
M.D., Thessaloniki (Greece), 1954
- Frederick T. Zugibe. *Assistant Clinical Professor of Pathology*
B.S., St. Francis (Brooklyn), 1951; M.S., Chicago, 1959; Ph.D., 1960; M.D., West Virginia, 1968

PHARMACOLOGY

CHAIRMAN: Professor Brian F. Hoffman

Herbert J. Bartelstone. *Professor of Dentistry and Professor of Pharmacology*
B.S., College of the City of New York, 1942; D.D.S., Columbia, 1945; Ph.D., 1960

Arthur L. Bassett. *Assistant Professor of Pharmacology*
B.S., College of the City of New York, 1955; Ph.D., State University of New York, Downstate Medical Center, 1966

Marvin R. Blumenthal. *Adjunct Assistant Professor of Pharmacology*
B.S., Michigan, 1946; M.D., Columbia, 1949

Paul F. Cranefield. *Adjunct Associate Professor of Pharmacology*
Ph.B., Wisconsin, 1946; Ph.D., 1951; M.D., Albert Einstein, 1964

Lowell M. Greenbaum. *Associate Professor of Pharmacology*
B.S., College of the City of New York, 1949; Ph.D., Tufts, 1953

Brian F. Hoffman. *David Hosack Professor of Pharmacology*
B.A., Princeton, 1943; M.D., Long Island, 1947

Frederick G. Hofmann. *Professor of Pharmacology*
B.A., Michigan, 1943; Ph.D., Harvard, 1952

Norman Kahn. *Assistant Professor of Pharmacology*
B.A., Columbia, 1954; D.D.S., 1958; Ph.D., 1964

Howard Sachs. *Adjunct Professor of Pharmacology*
B.S., Brooklyn, 1949; M.A., Columbia, 1950; Ph.D., 1953

Wilbur H. Sawyer. *Professor of Pharmacology*
B.A., Harvard, 1942; M.D., 1945; Ph.D., 1950

Jurg A. Schneider. *Adjunct Associate Professor of Pharmacology*
M.D., Berne, 1945

Hsueh-Hwa Wang. *Assistant Professor of Pharmacology*
M.D., National Central University Medical School (China), 1946

Shih-Chun Wang. *Professor of Pharmacology*
B.S., Yenching, 1931; M.D., Peiping Union Medical College (China), 1935; Ph.D., Northwestern 1940

PHYSIOLOGY

CHAIRMAN: Professor John V. Taggart

Martin Blank. *Associate Professor of Physiology*
B.S., College of the City of New York, 1954; Ph.D., Columbia, 1957; Ph.D., Cambridge, 1959

John Britten. *Assistant Professor of Physiology*
B.S., Yale, 1954; M.D., Columbia, 1958

Shu Chien. *Professor of Physiology*
M.B., National Taiwan, 1954; Ph.D., Columbia, 1957

Louis J. Cizek. *Associate Professor of Physiology*
B.S., Fordham, 1937; M.D., Columbia, 1941

LeRoy L. Costantin. *Assistant Professor of Physiology*
B.A., Columbia, 1955; M.D., 1959

Raimond Emmers. *Assistant Professor of Physiology*
B.A., East Texas Baptist, 1953; M.A., North Carolina, 1955; Ph.D., Syracuse, 1958

Arthur Karlin. *Associate Professor of Physiology (assigned to Neurology)*
B.A., Swarthmore, 1957; Ph.D., Rockefeller Institute, 1962

Richard C. Mason. *Assistant Professor of Physiology*
B.A., Indiana, 1948; Ph.D., 1952

William L. Nastuk. *Professor of Physiology*
B.S., Rutgers, 1939; Ph.D., 1945

Mero Nocenti. *Associate Professor of Physiology*
B.A., West Virginia, 1951; M.S., 1952; Ph.D., Rutgers, 1955

David Schachter. *Professor of Physiology*
B.S., New York University, 1946; M.D., 1949

John V. Taggart. *Professor of Physiology*
M.D., Southern California, 1940

Shunichi Usami. *Assistant Professor of Physiology*
M.B., Kyoto Prefectural University of Medicine, 1949; Ph.D., 1957

Paul Witkovsky. *Assistant Professor of Physiology (assigned to Ophthalmology)*
B.A., California (Los Angeles), 1958; M.A., 1960; Ph.D., 1962

PSYCHIATRY

CHAIRMAN: Professor Lawrence C. Kolb

James P. Cattell. *Associate Clinical Professor of Psychiatry*
M.D., Harvard, 1942

Lawrence C. Kolb. *Professor of Psychiatry*
M.D., Johns Hopkins, 1934

Bernard Schoenberg. *Assistant Clinical Professor of Psychiatry*
M.D., Columbia, 1954

ASSOCIATES

Robert H. Heissenbuttel, M.D.
(*Medicine*)

Paul K. Johnson, M.D.
(*Medicine*)

Daniel Justman, M.D.
(*Psychiatry*)

Terrence T. Kuske, M.D.
(*Medicine*)

Doris J. Mitchell, D.V.M.
(*Pathology*)

RESEARCH ASSOCIATES

Solomon L. Katz, D.D.S.

Samuel M. Ross, B.E.E.
(*Pharmacology*)

Herbert F. Silvers, D.D.S.

Irwin Steuer, D.D.S.

INSTRUCTORS

Henry Barnaby, Jr., D.D.S.

Earle R. Bassett, D.D.S.

INSTRUCTORS (*continued*)

Erlinda Benedicto, D.M.D.

Bernard H. Benkel, D.D.S.

Frederick Berlin, D.D.S.

Paul R. Bjorklund, D.D.S.

Abraham Blechman, D.D.S.

Ralph S. Blume, M.D.

(*Medicine*)

Belinda Bransilver, M.D.

(*Pathology*)

Robert S. Breakstone, D.D.S.

Ronald F. Bryant, D.D.S.

S. Gerald Cardinale, D.D.S.

Anthony L. DiMango, D.D.S.

Francis J. Faggella, D.D.S.

David S. Gottlieb, D.M.D.

Edward Greenfield, D.D.S.

Martin Handlers, D.D.S.

Robert J. Huettner, D.D.S.

Robert M. Hunt, Jr., Ph.D.

(*Anatomy*)

INSTRUCTORS (*continued*)

Robert L. Jacobson, D.D.S.
 Joseph E. Kafer, D.M.D.
 Neal L. Kaplan, D.D.S.
 George Kiriakopoulos, D.D.S.
 Eugene M. Levine, D.M.D.
 Arnold L. Lisio, M.D.

(*Medicine*)

Peter C. Lombardo, M.D.

(*Dermatology*)

Bernard Luftig, D.D.S.

Daniel L. Macken, M.D.

(*Medicine*)

Robert Miner, D.D.S.

Ralph K. Neuhaus, D.D.S.

Frank W. Pandolfo, D.D.S.

Sherman Pessin, D.D.S.

Norbert Ripp, D.D.S.

Charles A. Rogers, D.D.S.

Michael J. Shulman, D.M.D.

Ronald N. Singerman, D.M.D.

Charles S. Solomon, D.D.S.

INSTRUCTORS (*continued*)

William Steibel, D.D.S.
 William H. Suskin, D.M.D.
 Nicholas A. Vero
 George D. Wilner, M.D.
 (*Pathology*)

ASSISTANTS

Jerome Bartwink, D.D.S.
 Lawrence W. Bergmann, D.D.S.
 Martin J. Fields, D.D.S.

LECTURERS

Jerry L. Adelson, D.D.S.
 Harry G. Barrer, D.D.S.
 James W. Benfield, D.D.S.
 Robert M. Cole, D.D.S.
 Robert L. Fisher, D.D.S.
 Harry A. Galton, D.D.S.
 Lawrence R. Gurin, D.D.S.
 George F. Lindig, D.D.S.
 George V. Lyons, D.D.S.
 Saul Misheloff, D.D.S.

► PRESBYTERIAN HOSPITAL DENTAL SERVICE

DIRECTOR: Melvin L. Moss

CONSULTANT: Gilbert P. Smith

DIAGNOSTIC SERVICE: Edward V. Zegarelli, *attending dental surgeon*; Joseph A. Cuttita, *associate attending dental surgeon*; Jack Budowsky and Austin H. Kutscher, *assistant attending dental surgeons*

ORAL SURGERY SERVICE: Kourken A. Daglian and Boaz Shattan, *assistant attending dental surgeons*

PERIODONTIC SERVICE: Solomon N. Rosenstein, *attending dental surgeon*

PERIODONTIC SERVICE: Robert Gottsegen, *attending dental surgeon*

RESTORATIVE DENTAL SERVICE: George L. O'Grady, *attending dental surgeon*; Sebastian A. Bruno and Sidney L. Horowitz, *assistant attending dental surgeons*

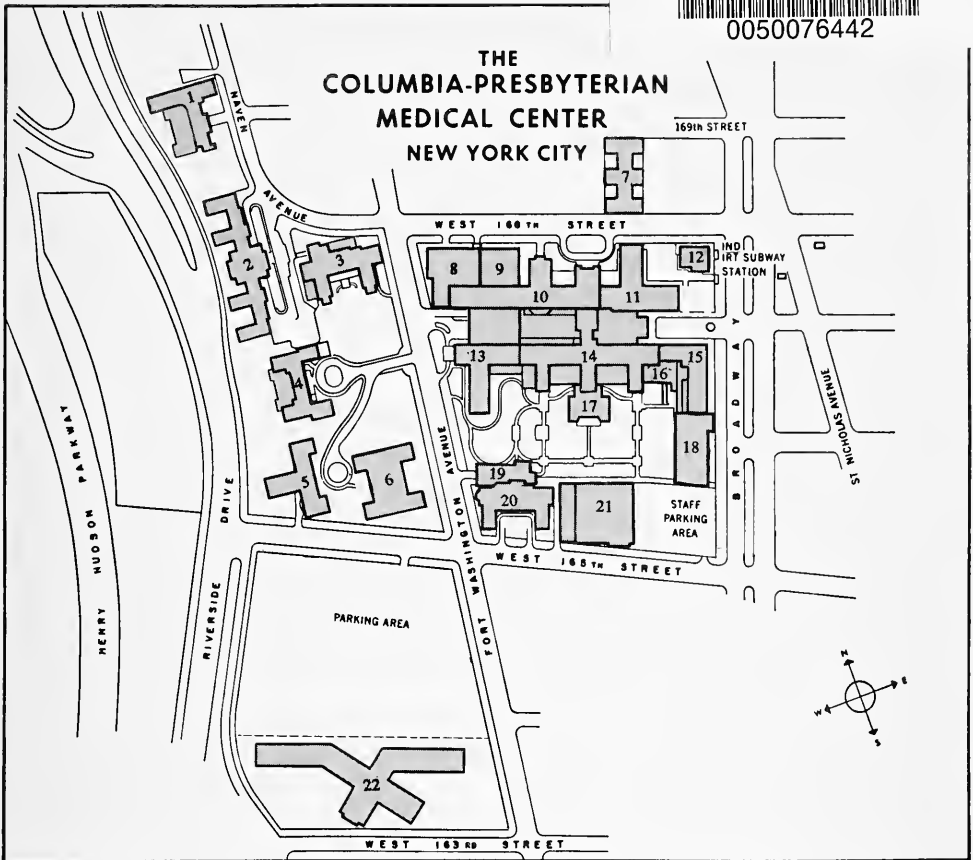
Academic Calendar, 1971-1972

Sept	7-8	Tuesday-Wednesday. Registration, including payment of fees.
	13	Monday. Classes begin.
Nov	2	Tuesday. Election Day. Holiday.
	24	Wednesday. First trimester ends for third and fourth years.
	25-27	Thursday-Saturday. Thanksgiving holidays.
	29	Monday. Second trimester begins for third and fourth years.
Dec	18	Saturday, through January 2, 1972, Sunday. Christmas holidays.
Feb	18	Friday. First semester ends for first-year class.
	19-27	Saturday-Sunday. Intersession. No classes for first year.
	21	Monday. Washington's Birthday. Holiday.
	25	Friday. Second trimester ends for third and fourth years.
	28	Monday. Second semester begins for first-year class. Third trimester begins for third and fourth years.
Mar	1	Wednesday. Last day to apply or reapply for all degrees and certificates to be awarded in June. Later filing of application requires payment of a late fee.
	25	Saturday, through April 2, Sunday. Spring holidays.
May	19	Friday. Third trimester ends for fourth-year class.
	22-26	Monday-Friday. Final examinations for third-year class.
	29	Monday. Memorial Day. Holiday.
June	6	Tuesday. Conferring of degrees and certificates.
	9	Friday. Second semester ends for first-year class.
	12-16	Monday-Friday. Final examinations for first-year class.
	12	Monday, through August 4, Friday. Summer Session for second- and third-year classes.
July	4	Tuesday. Independence Day. Holiday.



0050076442

THE
COLUMBIA-PRESBYTERIAN
MEDICAL CENTER
NEW YORK CITY



- | | |
|---|--|
| 1. BARD HALL | 13. HARKNESS PAVILION |
| 2. N.Y. STATE PSYCHIATRIC INSTITUTE
PSYCHOANALYTIC CLINIC | 14. PRESBYTERIAN HOSPITAL
N.Y. ORTHOPEDIC HOSPITAL
SLOANE HOSPITAL
SQUIER UROLOGICAL CLINIC |
| 3. NEUROLOGICAL INSTITUTE OF NEW YORK | 15. BABIES HOSPITAL |
| 4. MAXWELL HALL | 16. RADIOTHERAPY CENTER |
| 5. HARKNESS MEMORIAL HALL | 17. PAULINE A. HARTFORD MEMORIAL
CHAPEL |
| 6. DANA W. ATCHLEY PAVILION | 18. BABIES HOSPITAL RESEARCH,
TEACHING, AND OFFICE
ADDITION |
| 7. GEORGIAN NURSES RESIDENCE | 19. INSTITUTE OF OPHTHALMOLOGY
ADDITION |
| 8. WILLIAM BLACK MEDICAL
RESEARCH BUILDING | 20. INSTITUTE OF OPHTHALMOLOGY |
| 9. ALUMNI AUDITORIUM | 21. CENTRAL SERVICE BUILDING |
| 10. COLLEGE OF PHYSICIANS & SURGEONS | 22. FRANCIS DELAFIELD HOSPITAL,
N.Y.C. |
| 11. VANDERBILT CLINIC
SCHOOL OF DENTAL AND ORAL SURGERY | |
| 12. DEPARTMENT OF HEALTH
SCHOOL OF PUBLIC HEALTH AND
ADMINISTRATIVE MEDICINE
WASHINGTON HEIGHTS HEALTH
CENTER, N.Y.C. | |

To Reach the Medical Center: By subway, the Washington Heights Express of the IND Eighth Avenue or the Van Cortland Park train of the IRT Seventh Avenue. By bus, Fifth Avenue Bus #4 or #5. By car, the Westside Highway exit at the George Washington Bridge. Parking facilities are available at West 164th Street and Fort Washington Avenue.

To Columbia Students

THIS BULLETIN IS FOR YOUR USE AS A
SOURCE OF CONTINUING REFERENCE.
PLEASE SAVE IT. REPLACEMENT COPIES
CAUSE EXPENDITURES WHICH SHOULD
MORE DIRECTLY SERVE YOUR EDUCATION.